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**FOREIGN  
AGRICULTURE  
ECONOMICS**

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SUMMARY

After more than 40 centuries of rule by other nations, Cyprus achieved independence in August 1960. Now the island is in a period of transition that requires substantial adjustment in its economy. A continuing problem is the support of its predominantly rural population with a limited land area that is not abundant in natural resources for agriculture.

Virtually all cultivable land already is under cultivation. Except for possible extended use of rough land for pastures, the land for agriculture can be increased by no more than 5 percent by drainage and other reclamation practices. The population now on the land is larger than can be efficiently employed. Although manpower requirements for agriculture have declined recently as mechanization has increased, over two-fifths of the gainfully employed labor force is engaged in farming activities that together ordinarily bring in less than one-fifth of the gross national product (GNP).

Before independence, liberal aid from the United Kingdom permitted Cyprus to absorb appreciable numbers of underemployed rural workers in nonagricultural sectors of its economy. The farmer managed to stay in business by devoting much of his time to temporary unskilled non-agricultural work.

Since 1960, however, unemployment has become increasingly severe. Outflow of capital, withdrawal of British entre-

preneurial and administrative skills, a political stalemate between Greek and Turkish Cypriots, and a period of extended drought also have served to decelerate economic growth. Cyprus has a small consumer economy; shortage of domestic capital inhibits economic expansion. But prospects for considerable aid from abroad--from both the West and the Soviet bloc of nations--are favorable.

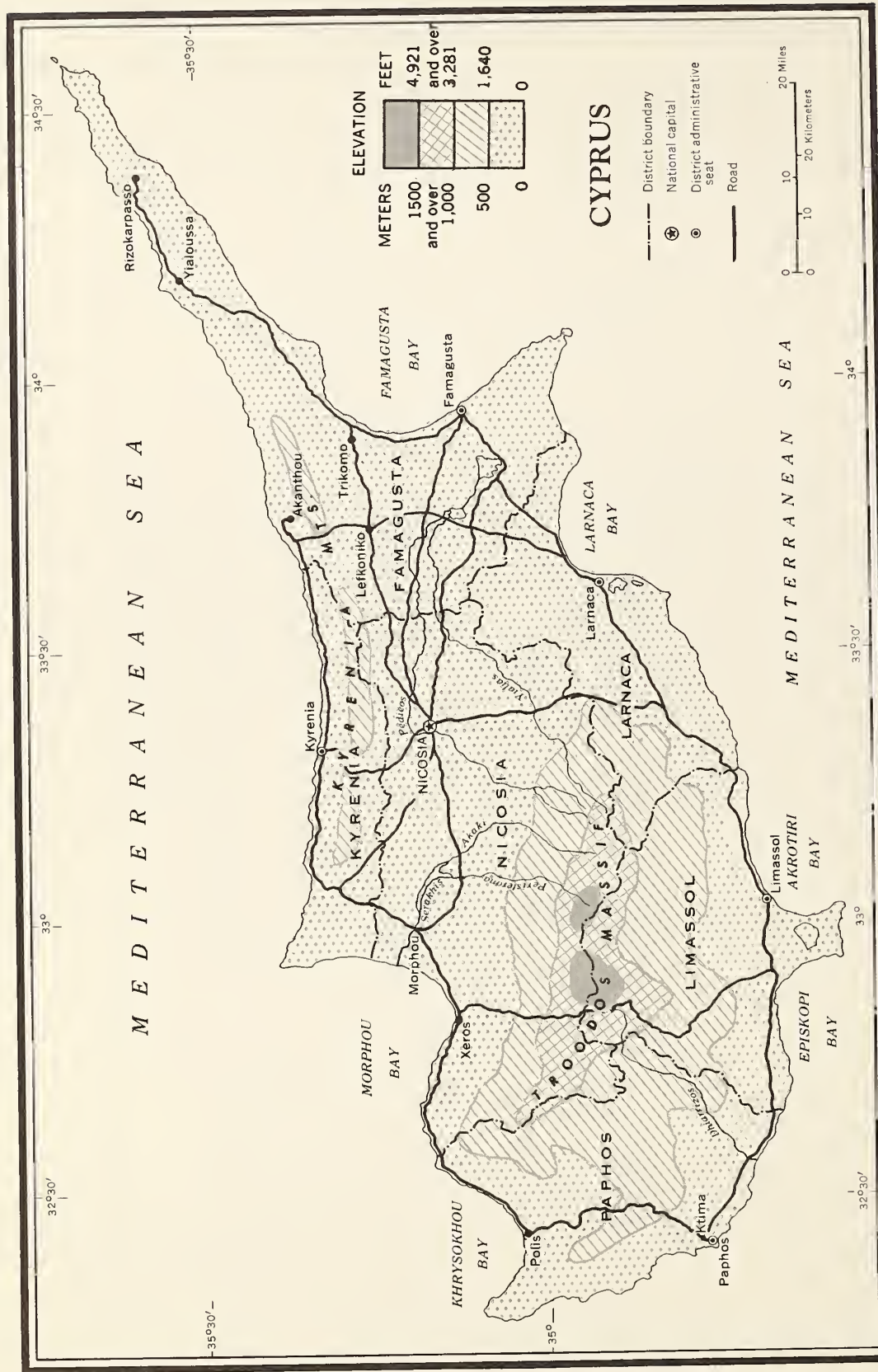
POPULATION

By 1965, Cyprus had a population of 594,000 persons, with an annual growth rate of about 1 percent. Present population density per square mile is about 165 people. The rural contingent makes up almost two-thirds of the total. Over 80 percent of the population is literate.

Cypriots of Greek descent are in the majority; only about 18 percent are Turkish Cypriots. More than four-fifths of the people are Christian, predominantly Greek Orthodox; the minority are Muslim.

ECONOMIC SITUATION

Gross national product--In 1964, GNP was \$347 million in 1962 prices, or \$550 per capita (monetary values are U.S. dollars based on the Cyprus pound: Cf 1 = \$2.80). But per capita income of the agricultural population is estimated at only about half of the national average.



In 1963, average earnings of men employed in agriculture were roughly \$15 for each week worked.

Balance of trade--Exports were 47 percent of the value of imports during 1960-64, and reached approximately the same level in 1965.

Economic assistance--Cyprus was a British Crown colony from 1925 to 1960. And at the time of independence in the latter year, the island received an aid grant from the United Kingdom equivalent to \$34 million for use in the first 5 transitory years. The United Kingdom subsequently agreed to pay an additional \$3.7 million for specified new construction, road building, and resettlement projects.

The United States has provided grain shipments, largely under Title II, P.L. 480, valued at over \$14 million. There has been limited U.S. technical assistance. A United Nations economic study mission helped the Government of Cyprus formulate its long-range plans for agricultural development. West Germany has made a number of contributions to the Cypriot community. Israel and Greece have offered aid.

Economic outlook--Cyprus has been weakened by its struggle for independence, continued disaffection between Greek and Turkish factions on the island, and an outmoded agricultural economy. Additional clouds on the economic horizon are the rapidity with which deposits of high-grade ores, a major source of export income, are approaching exhaustion and reduced income from British bases on the island--in the past these have contributed foreign exchange in amounts exceeded only by receipts from sales of agricultural products and minerals abroad.

The Government of Cyprus has outlined the framework for a Five-Year Program (1962-66) that projects expenditure of \$174 million for economic development; 20 percent, each, for improvement of harbors and facilities for power and communication. Not all of the funds necessary to implement the Five-Year Program are available within the country.

Plans for increasing agricultural and industrial production have progressed less rapidly than had been expected. Although Cyprus has a tremendous potential for tourism, the recent unstable political climate has greatly curtailed a tourist traffic that, through most of 1963, showed growing promise. It is reported that in Famagusta alone 14 new or nearly completed hotels were without bookings following the outbreak of serious conflict in December 1963.

Nevertheless, economic gains have been made. The newly enlarged Famagusta port began regular operations early in 1965. A match factory has been opened. In mid-1965, agreement in principle was reached between the Government of Cyprus and a consortium of oil companies for establishment of a \$10 million oil refinery near Larnaca; this enterprise represents the largest foreign investment in the island's history. Projects for agricultural improvement have recently gained impetus through technical assistance supplied by the U.S. Agency for International Development.

#### PHYSICAL FEATURES

Third largest (after Sicily and Sardinia) of the Mediterranean islands, Cyprus covers 3,572 square miles of land--an area about two-thirds that of Connecticut--lying some 240 miles north of the United Arab Republic (Egypt), 60 miles west of the Syrian Arab Republic, and 40 miles south of Turkey. From northeast to southwest, the island extends 140 miles. The north-south distance is 60 miles.

Cyprus' north coast is rimmed by the Kyrenia Mountains, a narrow limestone formation rising abruptly from the sea to about 3,000 feet. The more extensive Troodos Massif in the southwest culminates in Mt. Olympus, 6,000 feet above the sea. A flat, semifertile plain known as the Mesaoria stretches between the two mountain ranges for nearly 60 miles at elevations from sea level to about 700 feet. The Mesaoria is open to the sea on the east and west. Between the southern mountains and the sea there are intermittent narrow coastal plains.

## Land Use

Agricultural land makes up over three-fifths of Cyprus' total area:

	<u>1,000 acres</u>	<u>Percent</u>
Built-on areas, roads, & streams	160	7.0
Land in crops	992	43.4
Other land in farms <u>1/</u>	506	22.1
Communal grazing and state lands	398	17.4
Other	<u>230</u>	<u>10.1</u>
Total	2,286	100.0

1/ Grazing, brush, and trees.

Summers are typically Mediterranean --long and hot. From June through early September, temperatures often exceed 100° F. during the day. Summer nights are markedly cooler. Winters are short, mild, and wet, with daytime temperatures in Nicosia ranging from 55° F. to 60° F. Freezing temperatures are rare on the plains and coastal fringes. The southern mountains, however, are usually covered with snow for several weeks in winter.

Annual rainfall ranges from 12 to 15 inches on the plains to more than 40 inches in the Troodos Mountains. But little, if any, rain occurs in most parts of the island from May to October. Few rivers carry water throughout the year; some are merely channels carrying spate floods and water from the melting snow. Surface water is not used with fullest efficiency, and in some regions underground water supplies have been seriously depleted. The chronic water shortage is one of the main forces contributing to a retarded agricultural economy.

Over four-fifths of the cropland is dry-farmed, watered only by rainfall. About half of this land lies fallow each year. Grains occupy about half of the cultivated land; most of the other half is in other field crops (including grapes) and some is in carobs and olives, with some grazing among the trees.

Not all irrigated crops receive irrigation water the year round. Indications are that the area under continual irrigation could be increased, however, by from 8 to 18 percent of the land in crops. But there would be little gain in

the total area irrigated; most of the farms that might be so improved already have partial irrigation.

Grazing lands are largely State-owned. In general, these are of poor grade, typically ill-watered, and provide only scanty vegetation for animals.

### AGRICULTURAL PATTERNS

Cypriot agriculture is largely on a family-enterprise basis. Approximately 85 percent of all farmland is worked by owners; about 10 percent is leased (half under long-term leases); the rest is sharecropped. In a part of the world where fragmentation of farmland is more often the rule than the exception, the Cypriot system of landholding offers an extreme example of subdivision compound-ing subdivision.

With expanding population and static land area, most of the island's farms have shrunk through the years to a very small size. Only one-fifth of the cultivated acreage lies in farms of more than 70 acres; more than half the farms are smaller than 12 acres; about 15 percent have 3 acres or fewer.

And because of traditional laws of inheritance, under which all children and their heirs share equally, the average holding may be divided into more than a dozen plots--some scarcely large enough to accommodate oxen and plow--belonging to as many different farm families. In addition, separate plots of land owned by one farmer may be miles apart. The patchwork composition of the majority of

Table 1.--Cyprus: Production of major crops, 1958-62 average, 1963-65 annual

Crops	1958-62 average	1963	1964	1965 prelim.
: - - - - - 1,000 metric tons - - - - -				
Wheat.....	60	56	46	80
Barley.....	69	100	66	130
Beans and peas.....	6	7	7	7
Potatoes.....	66	107	132	100
Onions.....	3	3	2	3
Olives.....	13	12	7	15
Oranges.....	39	69	61	65
Lemons.....	10	11	10	12
Grapefruit.....	9	11	12	12
Grapes.....	100	63	95	90
Carobs.....	45	71	38	40

Cypriot farms brings inherent inefficiencies in time and effort, makes it difficult to understand and employ water rights, and severely limits use--or the potential for use--of farm machinery for expansion of output.

Mechanization has increased in recent years, in spite of the small, fragmented landholdings. About 4,700 tractors were licensed in 1963, compared with 1,500 in 1954. But a high proportion of farmers rely on animal draft power and follow traditional methods of cultivation.

Interest is growing in expanding the use of and improving the application of commercial fertilizers and pesticides. Government seed centers store and distribute clean and certified seed to Cypriot farmers. At the same time, there is an acknowledged need to turn to better-yielding varieties of crops, to emphasize production of the higher value crops, and to further improve farming technology.

#### AGRICULTURAL PRODUCTION

Crop acreage is not controlled in Cyprus, nor are there quota systems to regulate production. In general, the level of crop output is low, and production costs are high. For export items, this complicates competition on world markets.

Cyprus' main crops, wheat and barley, are grown under winter rainfall, sometimes with supplementary irrigation. A wide range of pulses for both food and feed are also grown in winter, but on a much smaller scale than grains. Spring-sown crops, started with late rains or on spate-irrigated land and then grown under dry-farming conditions, are mainly cotton, cuminseed, chickpeas, sesameseed, and tobacco. Summer crops grown under full irrigation include cotton, cowpeas, haricot beans, peanuts, melons, strawberries, potatoes, carrots, and a variety of other vegetables. These and other permanent crops are cultivated principally in the plains. Almonds and olives, usually produced without irrigation, are widely distributed. But citrus is found chiefly in coastal areas with a mild climate, where irrigation water is available in sufficient quantities for presently bearing groves.

The carob tree (*Ceratonia siliqua*) thrives on the seaward slopes of the two mountain ranges up to altitudes of about 1,000 feet; its beans are used for feed. The valleys on the southern massif are intensively cultivated; vineyards cover many slopes. Grapes are produced on an area greater than that of any other crop except grains. Cherries, apricots, plums, peaches, apples, and other deciduous fruit trees are also grown under irrigation, mainly in the valleys of the southern hills.

Table 1 illustrates the variations

that occur in annual crop production. These are not only a result of Cyprus' semiarid climate, but also because of variable annual and crop season rains. Records indicate that excellent yields are likely to occur only once in 30 years; in the case of grains output is usually good in only 3 years out of 10.

Livestock and livestock products usually account for about one-fifth of the island's agricultural income. For the most part, crop production and animal husbandry are distinct, separate industries--a condition that is considered to be a major drawback in the development of Cypriot agriculture. Livestock owners are not usually landowners also; even on settled farms, animal raising and crop production are separate, often conflicting enterprises.

Free-ranging, fat-tailed sheep and small, hardy goats make up the bulk of the island's livestock. Sheep-raising predominates in the lowlands; goat-raising tends to be concentrated in the higher, more inaccessible areas of the country. Both sheep and goats are very largely maintained on wasteland, weed growth, and crop residue grazing.

Since the early 1900's, some decrease in numbers of free-ranging goats has resulted from the Goat Exclusion Law, that was designed to reduce the damage done by goats to crops and trees. Between 1910 and 1960, the number of goats fell from 275,000 head to less than 150,000. Goat numbers have increased since 1960, partly through importation of high-grade stock and programs for improved breeding.

Table 2 shows a modest rise over the 1961-64 average in numbers of dairy cattle in 1965; efforts are being made to improve strains of these animals, and of sheep as well. More swine are being raised for meat. Both broiler and egg-production industries are on the uptrend also.

The economy has benefited significantly in recent years from the formation of cooperatives. In 1963, there were 870 cooperative societies in the country. Most villages have a cooperative retail store, as well as a credit-society office

for savings deposits and loans to farmers. In addition to village marketing, credit, and consumer co-ops, there are secondary societies, including the Cooperative Central Bank, wholesale supply unions, and marketing federations. At the third level are societies jointly owned by wholesale unions and the Cooperative Central Bank.

Cooperatives are not required to pay income taxes or land-transfer fees; they act as Government agents for crop collection and distribution of farm supplies and equipment. At present, agricultural cooperative societies control two-thirds of the carobs grown; half of the output of grapes, wine, tobacco, and onions; and 20 percent of the orange and grapefruit production.

Transport of farm goods through Cyprus is largely by truck or cart. About one-third of Cyprus' 5,000 miles of public roads is bituminous-surfaced; the rest is graveled. Except at Famagusta, port facilities and mechanical equipment are generally inadequate. The one railway on the island was dismantled in 1952.

#### FOOD CONSUMPTION

Although Cyprus exports more food products--by value--than it imports in normal years the island is only about 60-percent self sufficient in staple foods. Main deficiencies in domestic production are in dairy products, meats, fats and oils, sugar, and grains. Per capita daily consumption averages about 2,600 calories, however--a national level higher than that found in most other countries of the area.

#### AGRICULTURAL TRADE

Since 1962, receipts from sales of farm goods abroad have exceeded those earned from mineral products. In 1965 the value of agricultural exports amounted to over \$38 million, or about 55 percent of the value of all exports; fruits and vegetables made up 63 percent of the agricultural total.

The United Kingdom is still Cyprus' primary market for agricultural exports, in 1965 taking about 55 percent of the value of all main agricultural export



Table 2.--Cyprus: Livestock numbers and output of livestock products  
1961-64 average, and annual 1965

Livestock numbers and production	1961-64 average	1965
	-1,000 head -	
<u>Numbers:</u>		
Dairy cattle <u>1</u> /.....:	5	8
Other cattle.....:	28	28
Sheep.....:	420	415
Goats.....:	168	190
Horses, mules, and donkeys.....:	<u>2</u> /50	50
Poultry, broilers.....:	1,675	2,000
	-Metric tons -	
<u>Production:</u>		
Cows' milk.....:	10,256	12,600
Sheep's and goats' milk:	22,294	21,200
Beef and veal.....:	2,466	2,900
Mutton and lamb.....:	4,148	4,500
Pork <u>3</u> /.....:	2,290	2,800
Poultry meat.....:	2,672	3,250
Wool, grease.....:	430	450
	-Million dozen-	
Eggs.....:	5.5	6.2
<u>1</u> / Mature cattle. <u>2</u> / Estimated. <u>3</u> / Includes lard.		

items. But there has been a recent substantial increase in trade with the Soviet bloc where Cyprus is finding markets for surplus quantities of fruits, tobacco, and potatoes. Soviet bloc countries took about 12 percent, by value, of main agricultural exports in 1965; western Europe provided outlets for 17 percent; neighboring West Asian countries, about 8 percent; African nations, 3 percent, the United States, 2 percent; and Far Eastern countries, including Australia and New Zealand, most of the remainder.

Agricultural products valued at \$25 million made up about 17 percent of Cyprus' total imports in 1965. Grains, dairy products, meat, fats and oils, seed potatoes, sugar, coffee, tea, and animal feeds were the main commodities bought abroad. Suppliers of principal farm imports in that year were Western Europe, 32 percent, by value; the United Kingdom, 13 percent; the Soviet bloc, 11 percent; the Far East including Australia

and New Zealand, 10 percent; West Asia, 9 percent; Africa, 4 percent; the United States, about 5 percent; other American countries, 6 percent; origin of the remainder is not specified.

U.S. trade with Cyprus consists mainly of unprocessed agricultural products. Composition and volume of U.S.-Cypriot trade for the 3 years 1963-65 is shown in table 3.

#### AGRICULTURAL POLICY

Recognizing that major increases in the contribution of the agricultural sector to the national economy will come about mainly from stringently improved farm technology, the Government of Cyprus is broadly orienting its agricultural policies toward solution of such long-standing problems as: Enlargement of individual holdings; development of water supplies; improving efficiency of irrigation; exploitation of state lands;

Table 3.--U.S. trade with Cyprus, 1963-65

U.S. agricultural imports from Cyprus				U.S. agricultural exports to Cyprus			
Commodity	1963	1964	1965	Commodity	1963	1964	1965
:- - - 1,000 dollars - - -				:- - - 1,000 dollars - - -			
Wool, unmfed.	340	500	426	Wheat	632	2,080	0
Tobacco, unmfed.	304	363	460	Grain sorghum	0	0	0
Carobs	9	0	0	Corn	3	6	0
Grape juice	8	30	347	Other grains &:			
Crude vegetable material	0	74	16	preparations	35	74	293
Cheese	11	13	36	Dairy products	24	4	23
				Tobacco, flue-cured	307	339	218
				Food for relief or charity	1/215	2/101	3/80
Other agr.	32	29	18	Other agr.	74	84	197
Total agr.	704	1,009	1,303	Total agr.	1,290	2,688	811
Nonagr.	143	184	190	Nonagr.	2,192	1,898	2,077
Total imports	847	1,193	1,493	Total exports	3,482	4,586	2,888

1/ Includes nonfat dry milk, \$23,600; wheat flour, \$47,700; and cornmeal, \$5,400.

2/ Includes nonfat dry milk, \$16,800 and wheat flour, \$58,700.

3/ Includes nonfat dry milk, \$20,000 and wheat flour, \$60,000.

adoption of mixed husbandry; expansion of farm credit; and reorganization of agricultural institutions.

The means adopted or envisaged to achieve these major objections are:

1. Development of an efficient Extension Service.

2. Creation of a Land Utilization Service equipped with modern earthmoving machinery to carry out soil conservation work for farmers and to provide advice on soil conservation and improved land-use practices in general.

3. Modification of the cereal-fallow system in the main agricultural areas, using a plan under which fodder crops would be substituted for the fallow (also, improvement of grazing and fodder resources by research and its subsequent application).

4. Integration of animal and crop husbandries and diversification of farming in general, to provide an outlet for farm labor and to raise the income per farmer and per acre.

5. Improvement of farm crops by introduction, selection, trial, and distribution of types or varieties better suited to Cyprus' various agro-climatic zones.

6. Encouragement of production optimums for planting trees and other permanent crops--especially potatoes, carrots, carobs, citrus, table grapes, deciduous fruits, and olives--and introduction of improved cultural and processing practices for these crops.

7. Creation of a Water-Use Service to promote improved irrigation practices and schedules. Relative efficiency of irrigation as practiced at present is considered not to exceed 40 percent in most cases. So as to insure maximum

benefit from this scarce and very expensive production factor, plans are to raise this proportion to 75 percent, or more.

Legislation has been proposed (but a bill not yet enacted) to facilitate land consolidation, with the implementing associations based at the village level. It has been suggested that consolidation of holdings could be achieved by agreement among individual farmers, by a majority vote of farmers in each village, or by government order. Ownership of trees and water without land is provided for by the tentative plan. Officials estimate that about 7.5 million acres could undergo consolidation over a 25-year period, at a cost to the government of about \$18 per acre.

In agreement with the United Nations Special Fund, the Government of Cyprus

established an Agricultural Research Institute in 1962. The Department of Agriculture operates agricultural experiment stations in key rural areas. Among the subjects being demonstrated to farmers by extension workers are soil conservation methods, insect, rodent, and disease control, and use of fertilizers. Short courses and demonstrations are given in up-to-date cultivation practices. There are films and lectures on varied aspects of farming. Minor soil conservation works including dry walls, bench terraces, leveling and grading, subsoil tillage, water tanks, dams and channels are checked for suitability. In saline areas, drainage and reclamation trials are being made. A soil survey of the island is being continued. On owner's requests, smaller plots are being surveyed and most efficient land management measures determined.





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