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# THE SOCIAL AND ECONOMIC POSITION OF GROWERS IN THE MAIN VITICULTURAL ZONES OF CYPRUS

**S. Papachristodoulou and M. Upton**

AGRICULTURAL RESEARCH INSTITUTE  
MINISTRY OF AGRICULTURE AND NATURAL RESOURCES

NICOSIA



CYPRUS

FEBRUARY 1989

The views and interpretations in this report are those of the authors and not necessarily those of the Ministry of Agriculture and Natural Resources

# THE SOCIAL AND ECONOMIC POSITION OF GROWERS IN THE MAIN VITICULTURAL ZONES OF CYPRUS

S. Papachristodoulou

Agricultural Research Institute, Nicosia, Cyprus

and

M. Upton

Reading University, Reading, U.K.

## SUMMARY

A sample survey of 572 farmers, most of whom produce wine grapes, provides data on farm structure, production, employment and income. Results are analysed by viticultural zone, namely Mountains, Commandaria, Krasokhoria, Vines Paphos and Semi-mountain in order to establish the present situation and determine the extent of social and economic problems. Not all viticultural zones can produce quality wine-grapes: the steeper they lie the better quality of grapes, although yields are lower. About 50% of all villages representing about 25% of the total rural population are directly involved in grape production in addition to the town-based part-time growers. All zones are experiencing depopulation (a 4.5% annual decline on average) with the highest rate of decline (6.2%) in the Mountains and the lowest rate (2.2%) in the Semi-mountain zone. Population is ageing with about 34% over 60 years in Krasokhoria while for the other zones the proportion is about 28%. The decline in numbers of school children is twice as high (8.4%) as that for the whole population. There is a big difference in operated area per farm between the Mountain zone (2 ha/farm) and the rest which ranges from (4.7 to 6.6 ha/farm). Irrigated area is negligible in all zones except for the Mountains where 25% of all operated land is irrigated. Annual crops are insignificant except for the Semi-mountain zone (63% of area of crops). Wine grapes are the most important single crop covering 50% (Mountains and Commandaria) to about 60% of total cropped area (Krasokhoria, Vines Paphos). However, in the Semi-mountain zone vines represent only 17.4% of cropped area. The best zones in terms of quality grapes (Mountains, Krasokhoria) host the oldest vineyards. A minority of farmers in all zones own small numbers of sheep and goats. The biggest producer of grapes is the Vines Paphos zone, contributing 56.4% of total national production. Krasokhoria produces 19.7% and Mountains, Semi-mountains and Commandaria each contribute less than 7%. Quantities of new varieties delivered to the wineries have been increasing together with other local varieties. On the other hand quantities of grapes used for production of raisins, commandaria and zivania are decreasing. Total employment amounts to between 60 and 70 weeks per farm in all zones except Krasokhoria where it represents only 45 weeks/farm. On-farm employment ranges between 54 and 66% of total employment. The highest family income per farm is attained in the Semi-mountain zone at C£5462 followed by Vines Paphos with C£5017, Commandaria with C£3347, Mountain with C£3104 and finally Krasokhoria with C£2701/farm. The percentage contribution of farm-income to family income was 26.2%, 41.6% and 51.6% for Mountain, Commandaria and Krasokhoria and about 66% for the rest. A comparison of family income/capita with the national average shows a big gap. In the Mountain zone only 5.4% of the farm household incomes exceed the national average, 7.5% in Commandaria and 2.2% in Krasokhoria. The other zones fare better with Vines Paphos 11.5% and Semi-mountain 20% of farm household incomes lying above the national average. Action to improve conditions in the vine growing areas is needed including:

- a) further spending on improved social services and amenities,
- b) promotion of tourism and rural industrialisation
- c) restructuring of the vines industry and associated pricing policies.

## ΠΕΡΙΛΗΨΗ

Επισκόπηση 572 αμπελουργικών εκμεταλλεύσεων έδωσε στοιχεία για τη διάρθρωση της αμπελουργικής εκμετάλλευσης, την παραγωγή σταφυλιών, την απασχόληση της αμπελουργικής οικογένειας και τα εισοδήματα. Τα στοιχεία αναλύονται και τα αποτελέσματα παρουσιάζονται κατά αμπελουργική ζώνη (Ορεινή, Κουμανταρία, Κρασοχώρια, Αμπελοχώρια Πάφου, Ημιορεινή Πάφου) έτσι που να παρουσιάζουν την επικρατούσα κατάσταση και τα κοινωνικοοικονομικά προβλήματα κάθε περιοχής. Η ποιότητα των παραγομένων σταφυλιών ήταν καλύτερη στις ψηλότερες περιοχές αλλά η απόδοση ήταν χαμηλότερη. Όλες οι ζώνες αντιμετωπίζουν

πρόβλημα ερήμωσης (4.5% ετήσια μείωση πληθυσμού κατά μέσον όρο) με ψηλότερο ποσοστό μείωσης (6.2%) στην Ορεινή και χαμηλότερο (2.2%) στην Ημιορεινή ζώνη. Ο πληθυσμός γηράσκει σταθερά, όπως φαίνεται από το γεγονός ότι 34% των κατοίκων στα Κρασοχώρια και 28% στις άλλες ζώνες είναι πέραν των 60 ετών. Η μείωση του αριθμού παιδιών σχολικής ηλικίας (8.4% ετησίως) είναι διπλάσια από την μείωση του υπόλοιπου πληθυσμού της περιοχής. Υπάρχει μεγάλη διαφορά στην καλλιεργούμενη έκταση κατά εκμετάλλευση μεταξύ της Ορεινής (2 εκτ.) και των άλλων ζωνών (4.7, 6.6. εκτ.). Η αρδευόμενη γη είναι ελάχιστη σε όλες τις ζώνες εκτός από την Ορεινή όπου 25% της καλλιεργούμενης γης αρδεύεται. Τα σταφύλια είναι το πιο σημαντικό προϊόν και τα αμπέλια καλύπτουν το 50-60% της καλλιεργούμενης γης με εξαίρεση την Ημιορεινή όπου καλύπτουν μόνο 17.4% (63% της ζώνης καλύπτονται από ετήσιες καλλιέργειες). Οι καλύτερες ζώνες από άποψη ποιότητας σταφυλιών (Ορεινή, Κρασοχώρια) έχουν τα πιο γέρικά αμπέλια. Η ζώνη με τη μεγαλύτερη παραγωγή σταφυλιών είναι τα Αμπελοχώρια Πάφου που παράγουν 56.4% της ολικής ποσότητας. Τα Κρασοχώρια παράγουν 19.7% της ολικής παραγωγής και η Ορεινή, η περιοχή Κουμανταρίας και η Ημιορεινή Πάφου παράγουν από 7% περίπου κάθε μια. Οι ποσότητες σταφυλιών που παραδίδονται στα εργοστάσια παρουσιάζουν αύξηση ενώ οι ποσότητες σταφυλιών που χρησιμοποιούνται για παρασκευή σταφίδας, κουμανταρίας, και ζιθανίας παρουσιάζουν μείωση. Η ολική απασχόληση κυμαίνεται μεταξύ 60 και 70 εβδομάδων κατά εκμετάλλευση σε όλες τις ζώνες εκτός από τα Κρασοχώρια όπου είναι μόνο 45 εβδομάδες. Η απασχόληση μέσα στην εκμετάλλευση κυμαίνεται μεταξύ 54%-66% της ολικής απασχόλησης. Το ψηλότερο οικογενειακό εισόδημα κατά εκμετάλλευση επιτεύχθηκε στην Ημιορεινή και ήταν C£5462. Στις άλλες ζώνες ήταν: Αμπελοχώρια Πάφου C£5017, Κουμανταρία C£3347, Ορεινή C£3104 και Κρασοχώρια C£2701. Η συμβολή του γεωργικού εισοδήματος στο οικογενειακό εισόδημα ήταν 26.2% στην Ορεινή, 41.6% στην Κουμανταρία, 51.6% στα Κρασοχώρια και 66% στις υπόλοιπες ζώνες. Το οικογενειακό κατά κεφαλή εισόδημα των αμπελουργικών ζωνών ήταν πολύ χαμηλότερο από τον εθνικό μέσο όρο. Έτσι στην Ορεινή μόνο 5.4% των οικογενειών είχαν εισόδημα που ξεπερνούσε τον εθνικό μέσο όρο, στην Κουμανταρία 7.5%, στα Κρασοχώρια 2.2%, στα Αμπελοχώρια Πάφου 11.6% και στην Ημιορεινή Πάφου 20%. Χρειάζεται να ληφθούν μέτρα για βελτίωση των συνθηκών στις αμπελουργικές περιοχές περιλαμβανομένων και δαπανών για βελτίωση των κοινωνικών υπηρεσιών και ανέσεων, την προαγωγή του τουρισμού και της αγροβιομηχανίας, και την αναδιάρθρωση της αμπελουργίας και της πολιτικής τιμολογήσεως των σταφυλιών.

## INTRODUCTION

The vines and vine-products industries are important components of the economy of Cyprus. Throughout this report we refer only to the 60% of the land area under government control, since the Turkish invasion.

Vines are planted on more than 20% of the total cultivated area; almost one quarter of the agricultural population is engaged in viticulture while vine products account for 8 to 9 percent of total export value. Over 80 percent of total grape production is used for making wine and alcoholic products. A further 9 percent is dried to produce raisins while table grapes make up only 11 percent of the total.

Despite the importance of the vines sector, problems are faced in expanding export markets for Cypriot wines and wine products, prices do not cover costs of production and the industry is heavily subsidised (Cyprus Popular Bank, 1987). Rationalisation of vine products pricing and subsidy policies already important, is given greater urgency by Cyprus's adoption of Associate Status with the European Economic Community.

However, policy-making for the wines sector is further complicated by the fact that most wine grapes are grown in the hilly and semi-hilly regions on the south and south-west slopes of the Troodos Massif. The mainly agricultural economy of these regions is heavily dependent on viticulture. Furthermore, these are relatively depressed areas with per capita incomes well below the national average.

The objective of this paper is to document the characteristics of the main vine growing areas and their social conditions. Relative income levels are examined, leading to a discussion of alternatives for ameliorating the situation.

## RESEARCH METHODS

Questionnaires completed by 572 wine-grape growers in a survey conducted by the Department of Statistics and Research for the year 1984 were analysed by viticultural zone. Four zones coincide exactly with the pre-classified agro-economic zones namely, Commandaria, Krasokhoría, Vines Paphos and Semi-mountain Paphos. The fifth, which for the purpose of this study is called

«Mountains», comprises the zones Pitsilia, Marathasa and Deciduous (Fig. 1). The sample sizes were for Mountains 182 growers, for Commandaria 40, for Krasokhoria 85, for Vines Paphos 162 and for Semi-mountain 103 growers. The sample size by zone represented 3.1 - 6.3% of the total cropped area (Philippides, 1985). Other important sources of data were (a) the Vine Products Commission, (b) censuses of population (1960, 1976) and housing (1982), (c) the 1985 agricultural census, and (d) survey results on wages and salaries (1984).

## RESULTS

### Geographic setting of the viticultural zones

Although vines are grown practically everywhere, these are usually found on sloping land

under rainfed conditions mainly on the south-west of the Troodos massif at altitudes of from 500-1500m. The largest area of vines lies between the 500 and 800 mm annual isohyets (Christodoulou, 1959). More specifically, the characteristics of each zone are as follows:

**Mountains.** This zone was evaluated by the Ministry of Agriculture and Natural Resources services and found to be the area where top quality grapes can be produced (Quality zone A). The elevation ranges from 750-1600m. A rugged topography prevails and the terrain is, dissected by numerous streams and small deep valleys. Terracing with dry-stone walls is the predominant feature of the vineyards.

**Commandaria.** This occupies the eastern part of the main vine-growing areas and lies below the

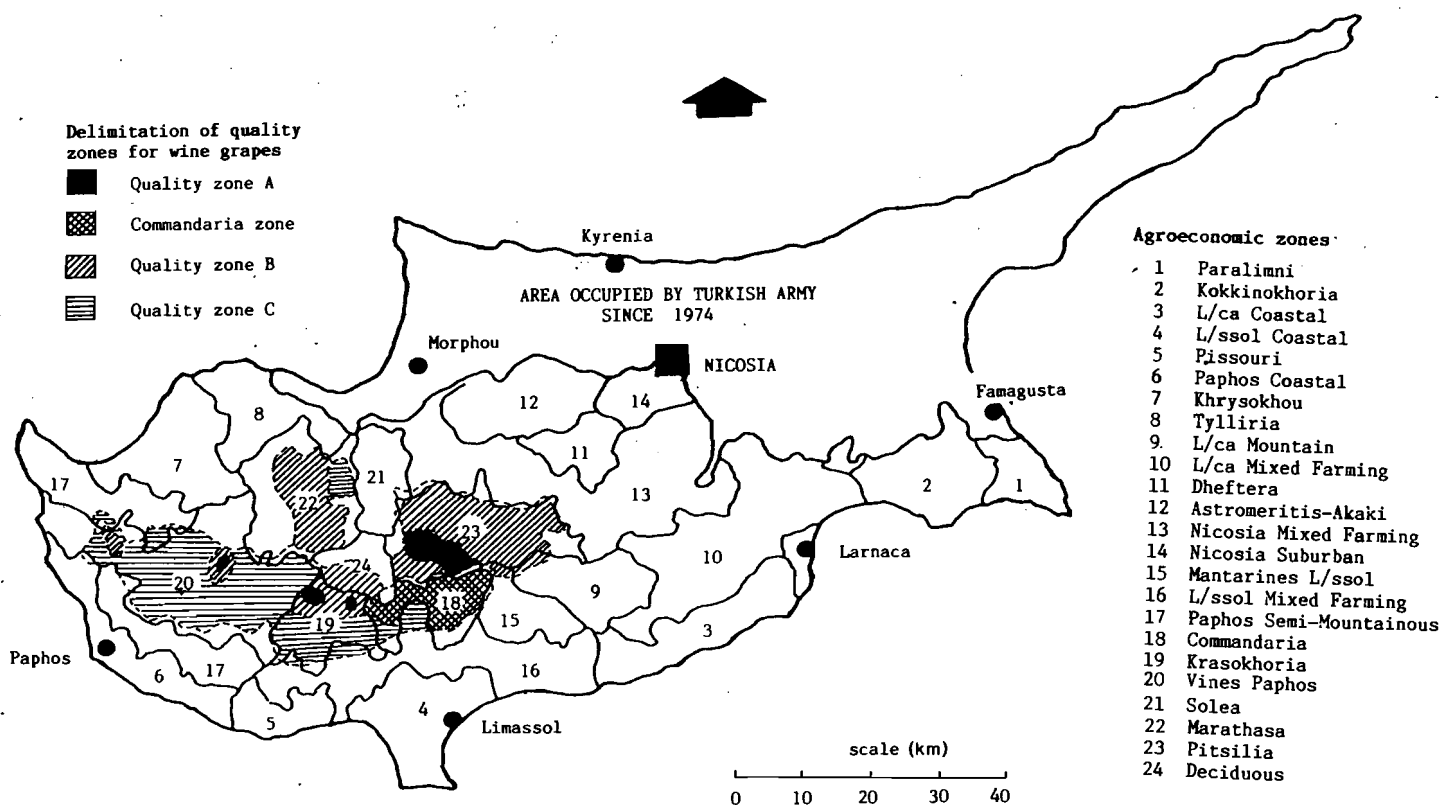


Fig. 1. Agroeconomic and quality zones for wine grapes

Mountains zone. The grapes grown here are used to produce a special type of wine known as «commandaria», which is considered to be the oldest individually named wine in the world. The «commandaria» originally made by the Knights Templars of the twelfth century has been produced in Cyprus ever since and the name and the wine have remained till today. This zone lies at a much lower elevation than the Mountains; between 300 and 900m, and of the area lies in a valley. Commandaria could easily be established as an Appellation of Origin wine because of its traditional origin and because the zone is geographically compact with uniform soil characteristics and climatic conditions.

**Krasokhoria (wine villages).** This zone is situated on the stony-faced southern slope of the Troodos massif at an elevation of between 300 and 1000 m. This zone was evaluated by the Ministry of Agriculture and Natural Resources services and a small part was found to produce excellent quality grapes (Quality zone A) the rest falling into Quality zone B on calcareous soils.

**Vines Paphos.** This is the biggest zone and was evaluated as Quality zone C, although a small part is considered as quality zone A. This zone is to be the subject of further studies in order to decide which areas should form zone D. The elevation of this zone lies between 300 and 600m while a small part rises to 900m. Its terrain is dissected by the 3 major rivers of Cyprus. The fertility of the soil varies with certain areas attaining exceptionally high yields of grapes although these are of low quality, while others produce normally.

**Semi-mountain Paphos.** This zone is not claimed to produce good quality grapes, but it produces high yields of wine grapes. The elevation is everywhere below 600m.

#### **Villages, population and rural families**

All the above zones together comprise 166 villages, with a total population of 36.2 thousand (1985) representing 46.2% and 20.8% of the total number of villages and the rural population, respectively, of the Republic of Cyprus. The villages in the vine region (all five zones) tend to be smaller (266 persons) as compared to other rural

zones (520 persons). About 11.8 thousand families live in the vines region with an average of 3.1 persons per family (Table A4).

Table A1 shows the distribution of villages and their size by zone. It is interesting to analyse rural population by size of village and the change in population. The facts that over 60% of villages have fewer than 250 inhabitants and that over 89% of villages have decreasing populations, show clearly the trend of out-migration and the gradual decline of rural population.

The intercensal rate of population change for the vines region (1976 versus 1982) was negative; it fell by 4.5%. The Mountains zone experienced the highest rate of decline of population (6.2%), followed by Krasokhoria (4.8%), Vines Paphos (3.2%), Commandaria (3.1%), and Semi-mountain (2.2%). The projected decline in population by the year 2000, at current rates of out-migration is 58.2%, i.e. to less than half the present population (Table A2).

The intercensal differences in population in the vines region in general is ageing (Table A3). For example, in 1982 29.1% of the inhabitants were over 60 years as compared to 23.3% in 1976. Krasokhoria is the zone with the highest percentage of old people, 33.7% over 60 years, while for the other zones there are around 28% over 60% years of age. Ageing of the population will, gradually but steadily, lead to the disappearance of villages if young active people continue to migrate.

Holder's age structure in the five viticultural zones showed significant differences compared to the overall country's age structure. The percent of holders in the age group between 25-40 years, which constitute the more dynamic part of the labour force was 4.7 to 16 units lower than the respective percent islandwide (Table A4). On the contrary, the percent of average holders was considerably higher, indicating a severe decline of the farming population.

Another major indicator of migration and ageing population is the number of elementary school pupils between 1974 and 1984 was almost

double that of the population, at 8.4%. Worst affected was the Mountains zone with a rate of decrease of 11.1% followed by Commandaria with 9.3%. If these rates are projected to the year 2000 the overall decrease will be of the order of 72.5%, i.e. from 6796 pupils in 1974 down to 835 pupils or 5 pupils per village. A few villages have such small numbers of pupils even today, that the government has decided to establish central schools serving more than one village. In 1984 there were in operation about 30 such schools serving from 2-10 villages each (Table A5).

Holdings education level differed also considerably from the average education level of the country. About 82 to 91% of the holders in the five zones received none, or only elementary education as compared to an overall percentage of 67%.

The general picture of the vines region is one of a declining, ageing population typical of depressed areas. There are clear differences within the region, with Vines Paphos and Semi-mountain zones less affected than the rest. The analysis of productivity and per capita incomes provides further evidence.

#### **Land Ownership**

Most land is privately owned. However, growers in all zones rent-in land. The proportion of the total rented is small in the Mountains (2.7%), Commandaria (1.3%) and Krasokhoria (6.3%). A larger proportion of the cultivated land is rented in Vines Paphos (15.7%) and Semi-mountain (28.8%). No growers rent out land, a fact which stresses the shortage of cultivated land for those actively engaged on the farm. Although growers own substantial uncultivated land areas, they cannot increase their operated land because of the high costs involved. The topography in places is steep and rocky, while soils are shallow and unsuitable for cultivation. Most rented land belongs to expatriates living in urban areas or abroad.

The smallest operated area per farm is found in the Mountains zone, at 2 ha, of which about 25% is irrigated (Table 1). About 70% of irrigation water comes from rivers and springs and the rest from boreholes and off-stream ponds. The

operated area per farm for Commandaria, Krasokhoria and Vines Paphos is about the same, ranging from 4.7 to 5.1 ha, while for the Semi-mountain zone it is 6.6 ha (Table 1). Only a small percentage of the land is irrigated with 7.2% for Commandaria and Semi-mountain, less for Vines Paphos, 3.7%, and the lowest of all 1.5% for Krasokhoria.

Land fragmentation is common in the vines region. Mountains and Vines Paphos have 8 parcels per farm followed by Commandaria and Krasokhoria with 7 parcels and Semi-mountain with 5 parcels per farm as compared to 5 parcels per holding for the average farm of Cyprus.

#### **Land Use and Livestock**

Annual crops are insignificant in the cropping pattern of farms in the vines region except for the Semi-mountain zone where they account for 63% (Table 2). Among permanent crops wine grapes is the most important, as expected. For Krasokhoria, 2.6 ha/farm or 61.7% of the total area of crop is taken up by wine-grapes. This is followed by Vines Paphos with 2.8 ha/farm or 60.5% vines, the Mountain zone with 0.9 ha/farm or 52.4%, Commandaria with 2.3 ha/farm 48.2% and finally Semi-mountain with 1.1 ha/farm or 17.4% of total area of crops. Other important crops for the Mountain zone are deciduous fruit (21%) and rainfed trees (16%). For Commandaria and Krasokhoria rainfed trees occupy 34.5% and 20.3% of the cropped area, respectively.

The main varieties of wine-grapes grown in the vines region are, the Local black (Mavro), Local white (Xynisteri), Malaga and Ophthalmo. In the distant past there were several wine making varieties but over time most of them were eliminated. Currently only varieties adapted to dry hot weather and steep slopes are grown.

**Local black (Mavro).** This dark coloured variety is shallow-rooted and covers most of the wine-grape area. It is the principal variety which is intended to be replaced by new quality wine-making varieties. It is a well adapted variety to the local conditions and if planted in rich soils it gives high yields. A large percentage of production is processed into wine.



**Table 1.** Land ownership by zone.

	Mountains	Comman- daria	Kraso- khoría	Vines Paphos	Semi- Mountain
Farms in the zone	4841	727	1390	3387	1459
Farms in the sample	182	40	85	162	103
1. Own land	3.4	7.3	5.9	6.0	6.2
2. Rented land	0.1	0.1	0.3	0.7	1.9
3. Uncultivated land	1.5	2.3	1.3	1.9	1.5
4. Cultivated land (1 + 2 - 3)	2.0	5.1	4.7	4.8	6.6
5. Rented out land	-	-	-	-	-
OPERATED LAND (4-5) (ha/farm)	2.0	5.1	4.7	4.8	6.6
Rainfed (% of operated land)	75.1	92.8	98.5	96.3	92.3
Irrigated (% of operated land)	24.9	7.2	1.5	3.7	7.3

Source: Prepared on the basis of Agricultural Statistics Survey, 1984, Department of Statistics and Research, Ministry of Finance, Nicosia.

**Table 2.** Land use by zone.

	Mountains	Comman- daria	Kraso- khoría	Vines Paphos	Semi- Mountain
Annual crops	----- percent area of crops -----				
	<b>9.7</b>	<b>8.1</b>	<b>16.5</b>	<b>29.2</b>	<b>62.9</b>
1. Cereals and legumes	1.6	6.4	16.2	28.9	61.8
2. Vegetables	8.1	1.7	0.3	0.3	1.1
Permanent crops	<b>90.3</b>	<b>91.9</b>	<b>83.5</b>	<b>70.8</b>	<b>37.1</b>
3. Deciduous	21.0	0.8	0.9	3.4	0.4
4. Other fruit	-	2.8	-	0.9	7.8
5. Wine grapes	52.4	48.2	61.7	60.5	17.4
6. Table grapes	0.8	5.6	0.6	0.6	3.0
7. Rainfed trees	16.1	34.5	20.3	5.4	8.5
8. AREA OF CROPS (1+...+7) (ha/farm)	1.7	4.8	4.2	4.7	6.3
9. Fallow (ha)	0.3	0.4	0.6	0.1	0.3
10. Double cropping (ha)	-	0.1	0.1	-	-

Source: Prepared on the basis of Agricultural Statistics Survey, 1984, Department of Statistics and Research, Ministry of Finance, Nicosia.

**Local white (Aspro or Xynisteri).** This is a white variety, strong and vigorous, deep-rooted and drought resistant. It is mostly used for white wine making (Cristodoulou, 1959).

**Ophthalmos.** A red type and the only local variety which is irrigated; it is usually found on wooden

multi-branch supports at the outer edge of terraced orchards. Its harvesting marks the end of the grape season (MEMRB, 1986).

**Malaga.** This variety was imported in 1928. It is a high yielding variety but in contrast to the local varieties it is less resistant to unfavourable weather

conditions and requires more fertile soil for cultivation. The semi-hilly areas are the ideal place for planting. Malaga has aromatic properties (Tsangarides, 1981).

Most vineyards are quite old as Table A6 shows. Overall 46.1% of vineyards are over 40 years old, 26.5% between 20-40 years and the rest 27.4% between 1-20 years of age. The Mountain zone hosts the oldest, vineyards (83% over 40 years) followed by Krasokhoria (58.4% over 40 years). For Commandaria, Vines Paphos and Semi-mountain, 35%, 31% and 19.4% of vineyards are over 40 years of age. Most old vineyards are irregularly planted and lack access roads.

About one third of the farmers in the Mountains and Commandaria zones, 22% in Krasokhoria and 40% in the Vines Paphos and Semi-mountain zones own livestock mainly small ruminants (sheep and goats). Table 3 shows the number of sheep and goats per holding. Livestock production provides mainly for consumption by the family although a few farmers sell any additional milk products, kids or lambs to supplement family income.

#### Supplies of vine products

Out of 240 villages producing grapes more than half (54.2% produce less than 127 t of grapes per village, 17.1% produce 127-635 t, and 14.2% from 635-1250 t of grapes/village. The rest of the villages (14.5%) produce from 1270 to 10160 t of grapes/village (Table A8). Most of the villages in the Mountain, Commandaria and Semi-mountain zones produce a few tons but a few go up to 1270 t of grapes/village. Krasokhoria produces from 635-10160 t of grapes/village. The distribution of villages by quantity of grapes produced in Vines Paphos is more or less normal (Table A7). The production of grapes by zone is given in Table A9. The smallest producer is Commandaria with 3.9% of total production followed by Mountains zone with 5.2%, Semi-mountain 6.7%, Krasokhoria with 19.7% and finally the biggest producer, Vines Paphos, with 56.4%.

By examining Table A10, the following changes have been observed by zone and vine product since 1962:

1. Production of grapes has decreased by 0.2% annually in the Mountains zone. All other zones have experienced increases to a greater or lesser extent, i.e. the production of grapes in Krasokhoria has increased only slightly (0.8% annually), in the Commandaria zone by 1.6%, in Vines Paphos by 3.6% and in the Semi-mountain zone by 7.3%. The bigger increases in the last two zones can be attributed to the extension of vineyards onto the lower and more fertile lands.

2. Production of Local black, Local white, Malaga, table grapes (delivered to wineries as unsuitable for fresh exports or because of over supply for export) Ophthalmo and new varieties has been increasing, while production of zivania (raw grape alcohol), and grapes used for Commandaria and raisins has been decreasing. New varieties showed the largest increase by 12.3% annually followed by Local black 6.4% and Malaga grapes 6.4%. The rates of decrease were for raisins 3.1%, grapes used for Commandaria 1.3% and zivania 1%.

The most recent developments on the production side occurred in the 1980-85 period when production of the Local black variety decreased by 1.5% while grapes for production of Commandaria decreased by 11.7%. Other products increased, i.e. new varieties by 25.7%, table grapes by 17.6%, raisins by 7.5%, zivania by 5.2%, Local white by 2.2% and Malaga by 0.2%. The high rate of increase recorded for new varieties was due to the vine replanting project which aims at replacing old unproductive vineyards with new quality wine-grape varieties. The increase in the table grapes exceeded demand for export and local consumption as fresh and therefore part of production was diverted into wine and raisin making. The increase of zivania and raisins also reflected the difficulties of disposing of wines and therefore growers were offered subsidies to encourage zivania and raisin production. However, the majority of growers prefer to deliver all their production to wineries and not engage in either zivania or raisin production because of the extra trouble and risks involved.

## Employment in the vine zones

The farm household is the main source of labour. Employment in agriculture and elsewhere is measured by asking farmers how many weeks per year they and members of their families spend in on-and off-farm work. The agricultural survey was carried out by personal interview and based on farmers' memory. The results of this analysis are given in Table 4. Total employment in the Semi-mountain zone is 67 weeks/farm, 66 weeks in Commandaria, 63 weeks in Mountains and Vines Paphos and only 45 weeks/farm in Krasokhoria. Under-employment in Krasokhoria is associated with less off-farm employment which could in turn be explained by the higher percentage of old people than in other zones. Old people prefer to work on their farms and since most of them are receiving a pension there is no real need for off-farm employment.

On-farm employment is 40 weeks/farm for Vines Paphos and Semi-mountain, 37 weeks/farm for Commandaria, 34 weeks in Mountains and 30 weeks/farm in Krasokhoria. The difference between total employment and on-farm employment is the off-farm employment. It ranges from 33% to 46% of total employment depending on the zone. A high proportion of off-farm occupations are found in construction and manufacturing, government and trade. A big proportion, although unspecified, refers to self-employed people (Table 4).

Due to uneven monthly distribution of the on-farm labour requirements occurring during pruning and harvesting of grapes, growers are obliged to hire extra labour which accounts for 2.6% in Mountains, 13.8% in Krasokhoria, 11% in Semi-mountain and 7% in Commandaria and Vines Paphos of the on-farm employment.

## Farm and off-farm income

Farm income is taken as the difference between gross revenue and cash expenses. Gross revenue was calculated by multiplying all physical farm output, i.e. grapes, zivania, raisins and other products including livestock by their correspond-

ing farm-gate prices. Cash expenses included the purchase of all material inputs, hired labour, contract work, transportation cost and other out-of-pocket expenses. Knowing the duration of off-farm employment and the type of occupation it was possible to apply the corresponding wages and salaries and arrive at off-farm income (Wages and Salaries Survey, 1984).

Table 5 shows the above-mentioned financial results by size of farm and zone. The lowest farm income, as expected was recorded in the Mountains zone, *C£816/farm*. Next, Commandaria and Krasokhoria attained the same farm income, *C£1393/farm*, and Vines Paphos and Semi-mountain followed with *C£3337* and *C£3618/farm*, respectively. The highest family income per farm (farm and non-farm) was attained in the Semi-mountain zone with *C£5462* followed by *C£5017/farm* in Vines Paphos. Commandaria managed to achieve a family income of *C£3347/farm* and Mountains *C£3104/farm*. Krasokhoria attained the lowest farm income *C£2701/farm*. By dividing family income by family size we get income per capita which was *C£1000*, *C£1035* and *C£1116* for Krasokhoria, Mountains and Commandaria respectively as compared to *C£1618* and *C£1762* for Vines Paphos and Semi-mountain. The percentage contribution of farm income was 26.4%, 41.6% and 51.6% for Mountains, Commandaria and Krasokhoria, and about 66% for each of the remaining zones.

The estimated returns to family labour on-and off-farm are in the Mountains zone *C£3.9* and *C£11.6/working day*, respectively, i.e. the productivity of labour on the farm is only about 1/3 of that for off-farm work. The productivity of on-farm labour is *C£6.4* and *C£5.9/working day* as compared to off-farm labour which is *C£10* and *C£10.4/working day* for Commandaria and Krasokhoria, respectively. For Vines Paphos the productivity of on-and off-farm labour is about the same, *C£10.2* and *C£10.7/working day*, respectively. Finally for the Semi-mountain zone the on-farm productivity of labour reached *C£14.6/working day* as compared to a lower productivity of off-farm labour of *C£9.6/working day* (Table A11).

**Table 3.** Average number of sheep and goats per holding.

	Mountains	Comman-daria	Kraso-khoria	Vines Paphos	Semi-Mountain
Sheep	none	none	3.2	2.4	5.7
Goats	1.7	2.6	5.6	4.5	7.1

Source: Census of agriculture, 1985.

**Table 4.** On-farm and off-farm employment (weeks/farm) by zone.

		Mountains	Comman-daria	Kraso-khoria	Vines Paphos	Semi-Mountain
Farm employment	(weeks/farm)	<b>34.0</b>	<b>37.0</b>	<b>30.0</b>	<b>40.0</b>	<b>40.0</b>
Crops	(% of total)	50.0	46.1	50.6	49.7	38.3
Livestock	»	4.0	10.0	16.1	13.8	19.9
Off-farm employment	(weeks/farm)	<b>29.0</b>	<b>29.0</b>	<b>15.0</b>	<b>23.0</b>	<b>28.0</b>
Agriculture	(% of total)	0.4	7.1	2.7	1.0	0.7
Mining	»	4.0	-	-	0.1	-
Industry	»	5.1	5.8	4.9	3.9	3.0
Services	»	-	-	-	6.3	8.1
Construction	»	7.3	6.1	4.1	9.1	9.8
Trade	»	3.9	2.8	2.2	2.4	4.0
Transport	»	0.9	1.1	7.1	3.1	2.5
Banking	»	0.1	0.4	-	0.5	0.7
Government	»	10.9	4.6	4.9	4.2	1.3
Other	»	13.4	16.0	7.4	5.9	11.7
<b>TOTAL EMPLOYMENT</b>	<b>(weeks/farm)</b>	<b>63.0</b>	<b>66.0</b>	<b>45.0</b>	<b>63.0</b>	<b>67.0</b>
<b>ON-FARM EMPLOYMENT</b>	<b>(weeks/farm)</b>	<b>34.0</b>	<b>37.0</b>	<b>30.0</b>	<b>40.0</b>	<b>40.0</b>
<b>HIRED ON-FARMLABOUR</b>	<b>(weeks/farm)</b>	<b>0.9</b>	<b>2.8</b>	<b>4.8</b>	<b>2.8</b>	<b>5.0</b>
<b>TOTAL ON-FARMLABOUR</b>	<b>(weeks/farm)</b>	<b>34.9</b>	<b>39.8</b>	<b>34.8</b>	<b>42.8</b>	<b>45.0</b>

Source: Agricultural Statistics Survey. 1984, Department of Statistics and Research, Ministry of Finance, Nicosia.

By distributing all farms included in the sample with respect to farm and family income/capita and comparing them with national average income/capita (C£2630) the extent of the income gap between the inhabitants of the vine region and the average Cypriot is apparent. Overall results show that about 93.3% of farms lie below the national average income. Forty-nine percent of farms fall

into the income bracket of up to C£1000/capita and 37.5% are in the income bracket C£1000-2000. The remaining 6.7% of farms lie between C£2000 and the national average C£2630.

Within the vines region there are differences. In the Mountains zone only 5.4% of the farm household incomes are above the national

Table 5. Farm and off-farm income by zone (C£/farm).

	Mountains	Comman- daria	Kraso- khoria	Vines Paphos	Semi- Mountain
Gross revenue	1225	2077	2216	4269	4759
Farm income (gross margin)	816	1393	1393	3337	3618
Off-farm income	2288	1954	1308	1680	1844
Family income	3104	3347	2701	5017	5462
Family income (C£/capita)	1035	1116	1000	1618	1762

Source: Prepared on the basis of Agricultural Statistics Survey and Statistics of Wages and Salaries. Ministry of Finance, Nicosia, Cyprus.

average, 7.5% in Commandaria and only 2.2% in Krasokhoria. The picture for the other zones is better, about 20% of the farm incomes in the Vines Paphos and 15% of those in the Semi-mountain zone are above the national average. Also the distribution of farms among the income brackets is about normally distributed (Table A12).

### DISCUSSION

The foregoing analysis has shown clearly the relatively depressed conditions of the main viticultural zones of Cyprus. However, there are differences within the region with the lower lying Vines Paphos and Semi-mountainous zones less affected than the rest. Similar problems no doubt arise in other upland areas of the Mediterranean Basin. Indeed, apart from the fact that land-use may differ, the main characteristics of declining, ageing population, low incomes, loss of social services and heavy reliance on one or two key agricultural products are common to disadvantage rural areas everywhere.

The problems are many faceted and there is no easy solution. In the Mountains, Krasokhoria and Commandaria zones the incomes of vine-growing families and their labour earnings are unacceptably low. This is despite the fact that viticulture and vine products are heavily subsidised. In so far as the problem is one of uneconomically small holdings and excessive fragmentation, the solution might be seen in terms of out-migration of growers and farm amalgamations. Although the desire of most Cypriots to maintain their ties with the land may limit the flow of labour out of farming (see Ansell,

Bishop and Upton, 1984), depopulation is already creating problems in the provision of rural services as shown above. As the population density declines, the per capita costs of providing utilities, such as roads, electricity supplies, health centres and social facilities rise to unsustainable levels.

An argument might be made for abandoning extensive areas of those depressed zones to the wild or for the spread of forestry. However, there is a widespread consensus in Cyprus that flow of population from rural areas should be stemmed. Thus the stated objectives of the Fifth Emergency Economic Action Plan 1987-91 are:

- 1) to stabilise rural population at levels compatible with the possibilities of development of each region;
- 2) to raise the standard of living to satisfactory levels with the aim of reducing differences between urban and rural areas;
- 3) to create additional employment opportunities by the introduction of light industry, tourism etc;
- 4) to improve the quality of life by upgrading the public services and establishing the necessary social and cultural infrastructure;
- 5) to improve the road network connecting the villages, to each other and to urban centers, and
- 6) to strengthen local authorities so they can participate and play an active role in development projects.

During the last five-year plan the Government spent about C£16 million on rural development, including the Pitsilia Integrated Rural Development Project in the Mountains zone. Such projects are aimed not only at improving rural services and amenities, raising the welfare of the population and making the area more attractive for continued residence, especially by the young, but also increasing employment opportunities and resource productivity. The physical achievements of this project have been recorded (Government of Cyprus, 1986) but the impact on employment and resource productivity of the villagers is harder to assess. Ultimately the viability of the highland vine growing areas must depend on improvements in labour returns and household incomes.

There may be scope for increased off-farm employment, possibly through the development of tourism and local processing of agricultural produce. Thus wineries might be located in rural areas. Costs of travel to urban employment are substantial, and farmers who undertake off-farm work in town may eventually migrate to an urban base. Financial and other incentives would be needed to induce industrial employers to locate their firms in rural areas.

The other alternative is to restructure the viticulture industry and pricing system so as to increase returns to labour and farm incomes of vine growers without a serious increase in the supply of grapes and the costs of subsidies. It might be achieved by replanting with quality vines, changing from a subsidy on output to one on area of vines paying a premium to high quality growers in selected areas and reducing the subsidies to ordinary grape producers. These possibilities are the subject of further study currently in progress.

## CONCLUSIONS

1. Farm incomes in the main viticultural zones of Cyprus are inadequate to support the existing population at an acceptable level of living.

2. Rural families find additional off-farm employment either within the vines region or by commuting to the nearest urban centre. The additional earnings contribute substantially to household incomes but not sufficiently to bring

about parity with other sectors of the economy. Incomes are lowest in the upland zones of the Mountains, Commandaria and Krasokhoria, those for the more productive Vines Paphos and Semi-mountain zones being less depressed.

3. Returns to labour in agriculture fall below those in off-farm work, particularly in the Mountains, Commandaria, Krasokhoria and Vines Paphos zones.

4. As a result rapid depopulation is occurring, especially by the young. The remaining, ageing population faces deteriorating social services and amenities, unless special action is taken.

5. Provision of social amenities alone is unlikely to raise productivity and cash incomes or to reduce the rate of migration. There is therefore a need to raise the earning capacity of the rural population either a) in agriculture, or b) in off-farm employment.

6. Off-farm employment may be generated by promoting tourism and agricultural processing industries such as wine making in the inland mountain areas, and other rural industrialisation. More resources should be devoted to these developments.

7. In the vine growing areas this is the most important permanent crop. It represents about 60% of the total cropped area in the Krasokhoria and Vines Paphos zones and 50% in the Mountains and Commandaria zones. There are few alternatives. This improvement of agricultural incomes depends upon increasing returns to viticulture. Yet vines are already heavily subsidised and surpluses of vine products are occurring. Restructuring of the vines industry and associated pricing policies is urgently needed.

## ACKNOWLEDGEMENTS

The authors gratefully acknowledge the cooperation with Mr. P. Philippides, Department of Statistics and Research, and the assistance provided and comments offered by members of the Agricultural Economics Section of the Agricultural Research Institute, and especially Mr. Chr. Papayiannis.

## REFERENCES

- Ansell, D.J., C. Bishop and M. Upton, 1984. *Part-time Farming in Cyprus*. Development Study No. 26. Department of Agricultural Economics, University of Reading, Reading, U.K.
- Christodoulou, D. 1959. *The Evolution of the Rural Land Use Pattern in Cyprus*. Geographical Publications Ltd, London, U.K.
- Cyprus Popular Bank. 1986. *Facts about Cyprus*. Cyprus Popular Bank, Nicosia.
- Cyprus Popular Bank. 1987. *Economic Review*, Vol 11, No 5. CPB, Nicosia.
- Government of Cyprus. 1986. *Fifth Emergency Economic Action Plan, 1987-91*. Planning Bureau, Nicosia.
- MEMRB. 1986. *A Feasibility Study for the Agros Winery*, Report prepared by Middle East Marketing Research Bureau, Nicosia for the Ministry of Commerce and Industry. (Unpublished).
- Ministry of Finance. 1961. *Census of Population, 1960*. Department of Statistics and Research, Nicosia.
- Ministry of Finance. 1979. *Census of Establishments, 1976*. Department of Statistics and Research, Nicosia.
- Ministry of Finance. 1983. *Census of Housing, 1982*. Department of Statistics and Research, Nicosia.
- Ministry of Finance. 1985a. *Agricultural Statistics, 1984*. Department of Statistics and Research, Nicosia.
- Ministry of Finance. 1985b. *Statistics of Wages, Salaries and Hours of Work, 1984*. Department of Statistics and Research, Nicosia.
- Ministry of Finance. 1987a. *Census of Agriculture, 1985*. Preliminary results. Department of Statistics and Research, Nicosia.
- Ministry of Finance. 1987b. *Agricultural Statistics, 1985*. Department of Statistics and Research, Nicosia.
- Philippides, P. and Chr. Papayiannis. 1983. *Agricultural Regions of Cyprus: a comparative statistical and techno-economic analysis*. Joint publication, Department of Statistics and Research and Agricultural Research Institute, Nicosia.
- Philippides, P. 1985. *Sample Survey on Crop Production*. Department of Statistics and Research, Ministry of Finance, Nicosia.
- Tsangarides, L. 1981. *Economics of Grapes of Cyprus*, MSc Thesis. Iowa State university, Iowa, USA.

**Table A1.** Villages with increasing or decreasing population, by size and zone.

	No of Villages	Villages with increasing population		Villages with decreasing population		No. of villages with indicated population, 1982			
		1960-	1976-	1960-	1976-	< 250	251-	501-	> 751
		76	82	76	82		500	750	
Mountains	54	22	3	32	51	28	16	6	4
Commandaria	14	1	1	13	13	12	2	-	-
Krasokhoria	14	-	1	14	13	5	5	3	1
Vines Paphos	48	4	7	44	41	32	9	5	2
Semi-Mountain	36	3	6	33	30	25	10	-	1
<b>TOTAL</b>	<b>166</b>	<b>30</b>	<b>18</b>	<b>136</b>	<b>148</b>	<b>102</b>	<b>42</b>	<b>14</b>	<b>8</b>

Source: Ministry of Finance (1961, 1979 and 1983).

**Table A2.** Population projections in the Vine zones, 1982-2000.

	Census		Annual average growth rate	Projected population				% decrease 2000 over 1982
	1976	1982		1985	1990	1995	2000	
	-----1000's-----		%	-----1000's-----				
Mountains	26.1	17.8	-6.21	14.6	10.6	7.6	5.5	69.0
Commandaria	3.4	2.8	-3.10	2.6	2.2	1.9	1.6	43.2
Krasokhoria	7.0	5.2	-4.82	4.5	3.5	2.8	2.1	58.9
Vines Paphos	14.7	12.1	-3.21	10.9	9.3	7.9	6.7	44.4
Semi-Mountain	7.2	6.3	-2.19	5.4	4.1	3.2	2.5	60.6
<b>Vines zones</b>	<b>58.4</b>	<b>44.1</b>	<b>-4.54</b>	<b>38.0</b>	<b>29.7</b>	<b>23.3</b>	<b>18.4</b>	<b>58.2</b>

Source: Ministry of Finance (1979 and 1983).

**Table A3.** Population structure by age group and zone in 1976 and 1982 (percentages).

Age group (years)	Mountains		Commandaria		Krasokhoria		Vines Paphos		Semi-Mountain	
	1976	1982	1976	1982	1976	1982	1976	1982	1976	1982
	- 10	14.2	11.0	13.2	11.7	11.3	8.3	10.9	9.7	12.9
10 - 20	22.3	17.3	21.9	17.3	20.0	16.0	21.8	16.7	21.6	18.4
20 - 40	23.7	21.1	23.7	23.5	21.8	19.8	23.0	22.3	22.1	21.4
40 - 60	19.6	22.1	18.9	20.0	20.8	22.2	20.6	23.2	19.8	20.7
over 60	20.2	28.0	22.3	27.5	26.1	33.7	23.7	28.1	23.6	29.7
<b>TOTAL (No.)</b>	<b>26111</b>	<b>17774</b>	<b>3405</b>	<b>2819</b>	<b>7034</b>	<b>5229</b>	<b>14660</b>	<b>12052</b>	<b>7158</b>	<b>6269</b>

Source: Ministry of Finance (1979 and 1983).



**Table A4. Holders by age, level of education and size of holdings by vine zone as compared to all Cyprus.**

	Mountains	Comman- daria	Kraso- khoría	Vines Paphos	Semi- Mountain	All Cyprus
-----percent of total-----						
<b>Holders' age</b>						
Under 25 years	0.5	1.7	0.6	1.0	1.6	1.2
25 - 44	22.4	28.6	17.3	21.5	24.8	33.3
45 - 64	40.1	36.0	38.3	42.5	37.1	44.3
Over 65	37.0	33.7	43.8	35.0	36.5	21.1
<b>No. of holdings</b>	4841	727	1390	3387	1459	47521
<b>Population</b>	14913	2348	3983	10301	4699	174231
<b>Family size</b>	3.1	3.2	2.9	3.0	3.2	3.67
-----percent of total-----						
<b>Holders' education</b>						
None	6.5	5.2	4.7	12.2	10.7	4.3
Elementary	75.8	79.5	86.2	71.0	71.1	62.9
Secondary	15.6	14.5	8.0	14.0	15.6	25.5
Higher	2.1	0.8	1.1	2.8	2.6	7.3

Source: Ministry of Finance (1987a).

## APPENDIX

**Table A5.** Elementary school pupils projections in the Vine zones, 1974-84.

	Census		Annual average growth rate %	Projected number of pupils				% decrease 2000 over 1982
	1974	1984		1985	1990	1995	2000	
Mountains	2,994	1,042	-11.1	926	514	284	158	84.8
Commandaria	428	176	- 9.3	160	98	60	37	79.0
Krasokhoria	992	605	- 5.1	575	443	341	263	61.0
Vines Paphos	1,642	819	- 7.2	760	523	360	248	69.7
Semi-Mountain	740	388	- 6.7	362	256	182	129	66.7
<b>Vines zones</b>	<b>6,796</b>	<b>3,030</b>	<b>- 8.4</b>	<b>2,782</b>	<b>1,834</b>	<b>1,227</b>	<b>835</b>	<b>72.5</b>
	Number of central elementary schools		Number of villages served by each school					
	14		2					
	4		3					
	3		4					
	3		5					
	1		6					
	3		7					
	1		10					

**Table A6.** Distribution of vineyards by age and zone.

	Mountains %	Commandaria %	Krasokhoria %	Vines Paphos %	Semi-Mountain %	All Cyprus %
<b>Age of vineyards (years)</b>						
1- 5	1.1	6.9	1.5	2.5	3.2	2.3
5- 10	1.4	16.4	3.2	8.6	8.6	6.3
10-20	3.1	18.7	10.0	26.0	39.2	18.8
20-40	11.4	23.0	26.9	31.9	29.6	26.5
over 40	83.0	35.0	58.4	31.0	19.4	46.1
<b>TOTAL (ha)</b>	<b>4895</b>	<b>1622</b>	<b>4675</b>	<b>10670</b>	<b>1485</b>	<b>27500</b>

Source: Agricultural Census 1985 and Agricultural Statistics 1986  
 Department of Statistics and Research,  
 Ministry of Finance, Nicosia.

**Table A7.** Distribution of villages by production of grapes and zone, 1962 and 1984.

Grape production (t/village)	Mountains		Commandaria		Krasokhoria		Vines Paphos		Semi-mountain	
	Villages No.	%	Villages No.	%	Villages No.	%	Villages No.	%	No.	%
Year 1962										
- 127	30	20.5	2	1.4	-	-	9	6.2	19	13.0
127- 635	22	15.1	6	4.1	2	1.4	9	6.2	9	6.2
635- 1270	-	-	3	2.0	1	0.7	13	8.9	-	-
1270- 3175	-	-	-	-	6	4.1	9	6.1	-	-
3175- 6350	-	-	-	-	3	2.0	2	1.4	-	-
6350-10160	-	-	-	-	-	-	1	0.7	-	-
<b>TOTAL</b>	<b>52</b>	<b>35.6</b>	<b>11</b>	<b>7.5</b>	<b>12</b>	<b>8.2</b>	<b>43</b>	<b>29.5</b>	<b>28</b>	<b>19.2</b>
Year 1984										
- 127	40	27.4	-	-	-	-	3	2.1	11	7.5
127- 635	8	5.5	7	4.8	-	-	7	4.8	7	4.8
635- 1270	4	2.7	4	2.7	3	2.0	10	6.9	10	6.9
1270- 3175	-	-	-	-	7	4.8	13	8.9	-	-
3175- 6350	-	-	-	-	1	0.7	6	4.1	-	-
6350-10160	-	-	-	-	1	0.7	4	2.7	-	-
<b>TOTAL</b>	<b>52</b>	<b>35.6</b>	<b>11</b>	<b>7.5</b>	<b>12</b>	<b>8.2</b>	<b>43</b>	<b>29.5</b>	<b>28</b>	<b>19.2</b>

Source: Compiled on the basis of data provided by the Vine Products Commission.

**Table A8.** Distribution of villages by volume of production, 1962 and 1984.

Tons/village	1962		1984	
	Villages	%	Villages	%
<b>A. All villages</b>				
- 127	140	60.0	130	54.2
127- 635	51	21.3	41	17.1
635- 1275	24	10.0	34	14.2
1270- 3175	15	6.3	22	9.2
3175- 6350	5	2.0	8	3.3
6350-10160	1	0.4	5	2.0
<b>TOTAL</b>	<b>240</b>	<b>100.0</b>	<b>240</b>	<b>100.0</b>
<b>B. Villages in zones studied</b>				
- 127	60	41.1	54	37.0
127- 635	44	30.1	29	19.9
635- 1270	21	14.4	31	21.2
1270- 3175	15	10.3	20	13.7
3175- 6350	5	3.4	7	4.8
6350-10160	1	0.7	5	3.4
<b>TOTAL</b>	<b>146</b>	<b>100.0</b>	<b>146</b>	<b>100.0</b>

Source: Compiled on the basis of data provided by the Vine Products Commission.

**Table A9.** Production of vine products by zone, 1985 (fresh-grape) equivalent.

	Mountains	Comman- daria	Kraso- khoría	Vines Paphos	Semi- Mountain	All Cyprus
	-----percent of total-----					
Local black	44.1	39.0	61.4	63.0	60.4	57.7
Local white	6.4	4.9	5.4	12.3	13.6	10.0
Malaga	0.6	2.4	1.3	3.8	4.2	4.2
Ophthalmó & new varieties	9.0	2.4	2.6	4.4	1.2	3.8
Table grapes	0.3	5.4	0.8	0.6	0.2	3.2
Zivania	39.1	11.8	25.9	7.7	8.1	12.7
Commandaria	-	25.2	-	-	-	1.0
Raisins	0.5	8.9	2.6	8.2	12.3	7.4
<b>TOTAL (tons)</b>	<b>9331</b>	<b>7050</b>	<b>35375</b>	<b>101349</b>	<b>12092</b>	<b>179518</b>
<b>% OF TOTAL</b>	<b>5.2</b>	<b>3.9</b>	<b>19.7</b>	<b>56.4</b>	<b>6.7</b>	<b>100.0</b>

Source: Compiled on the basis of village data provided by the Vine Products Commission.

**Table A10.** Rates of growth of production of grapes by zone and vine products, 1962 and 1985.

	1962	1985	Rate of growth
	-----tons-----		%
<b>Zones</b>			
Mountains	9672	9331	-0.2
Commandaria	4836	7050	1.6
Krasokhoría	29314	35373	0.8
Vines Paphos	45006	101349	3.6
Semi-Mountain	2467	12092	7.1
Other	7403	14323	2.9
<b>TOTAL</b>	<b>98698</b>	<b>179518</b>	
<b>Product</b>			
Local black	24571	103507	6.4
Local white	11429	17911	2.0
Malaga	1820	7565	6.4
Table grapes	1687	5680	5.4
New varieties (incl. Ophthalmó)	471	6809	12.3
Zivania	28580	22896	-1.0
Commandaria	2384	1779	-1.3
Raisins	27756	13371	-3.1

Source: Prepared on the basis of data by village provided by the Vine Products Commission.

**Table A11.** Return to Family Labour (on and off-farm) by zone.

Return to labour (C£/working day)	Mountains		Commandaria		Krasokhoria		Vines Paphos		Semi-mountain		TOTAL	
	1*	2**	1	2	1	2	1	2	1	2	1	2
- 5.00	2.3	4.1	3.3	5.0	2.4	2.8	3.2	3.1	-	-	2.5	3.6
5.00-10.00	6.9	9.3	7.4	9.3	7.2	9.0	7.3	8.8	8.6	8.8	7.3	9.0
10.00- 15.00	10.8	12.2	11.5	12.0	12.1	12.0	12.7	12.1	12.1	11.9	12.3	11.1
15.00-20.00	-	17.1	-	17.5	15.2	18.2	17.2	17.1	17.5	-	17.3	17.3
20.00+	22.2	23.8	-	-	20.7	21.2	22.3	20.8	22.3	21.0	22.3	21.0
<b>RETURN TO LABOUR</b>	<b>3.9</b>	<b>11.6</b>	<b>6.4</b>	<b>10.0</b>	<b>5.9</b>	<b>10.4</b>	<b>10.2</b>	<b>10.7</b>	<b>14.6</b>	<b>9.6</b>	<b>7.8</b>	<b>10.7</b>
<b>NUMBER OF FARMS</b>	150		35		55		97		76		413	
<b>NUMBER OF PENSIONERS</b>	32		5		30		65		27		159	
<b>TOTAL NUMBER OF FARMS</b>	182		40		85		162		103		572	

\* Return to family on-farm labour (C£/working day)

\*\* Return to family off-farm labour (C£/working day)

**Table A12.** Distribution of farms with respect to Family and Farm Income by income per capita and zone.

Income per capita ((C£)	Mountains		Commandaria		Krasokhoria		Vines Paphos		Semi-mountain		TOTAL	
	1*	2**	1	2	1	2	1	2	1	2	1	2
	-----No. of farms as % of total-----											
- 250	15.8	58.7	7.5	52.5	1.2	37.6	0.6	8.6	-	14.6	5.9	33.1
251-500	8.7	23.9	10.0	12.5	15.3	29.4	2.5	17.9	4.8	19.4	7.3	21.4
501-750	16.8	7.1	20.0	17.5	30.6	14.1	7.4	14.8	9.7	15.5	15.2	12.6
751-1000	15.2	4.4	15.0	12.5	18.8	5.9	19.8	16.0	8.7	6.8	15.9	8.9
1001-1250	7.6	1.6	10.0	5.0	14.1	5.9	14.8	9.3	14.6	7.8	12.0	5.7
1251-1500	11.4	2.2	10.0	-	3.5	-	10.5	9.3	6.8	5.8	9.0	4.4
1501-1750	7.1	-	10.0	-	4.7	3.5	8.6	4.3	13.6	6.8	8.5	3.0
1751-2000	5.4	1.1	2.5	-	2.4	-	8.0	4.3	11.6	6.8	6.6	2.8
2001-2250	3.3	0.5	5.0	-	4.7	2.4	2.5	1.9	3.9	2.9	3.5	1.6
2251-2500	2.2	-	-	-	2.3	1.2	3.1	1.2	7.8	2.9	3.3	1.0
2501-2750	2.2	0.5	5.0	-	1.2	-	4.9	3.1	7.8	5.8	4.2	2.1
2751+	4.3	-	5.0	-	1.2	-	17.3	9.3	10.7	4.8	8.6	3.5
<b>TOTAL NUMBER OF FARMS</b>	182		40		85		162		103		572	

\* Family income (farm &amp; off-farm)

\*\* Farm income

Issued by the Press and Information Office, Nicosia

Printed by M. S. Zevlaris &amp; Sons Ltd., Tel. 311818, Strovolos - Nicosia