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**PROSPECTS FOR THE DEVELOPMENT OF
GRAPE PRODUCTION AND
MARKETING IN AFGHANISTAN**

By :

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November 1974

BEST AVAILABLE

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TABLE OF CONTENTS

	<u>Page</u>
I. Summary and Main Recommendations	1
II. Introduction	6
A - General Background	6
B - Economic Importance	6
C - Climate and Topography	9
D - Climate and Grape Growing	9
E - Agricultural Features	10
1. Grape growing areas	10
2. Varieties	12
3. Maturity and Quality	16
4. Size of vineyards	17
5. Competing crops of grapes	19
6. Waste and Losses	20
7. Cultural Practices	21
8. Valuation of Vineyards	24
9. Establishing Young Vineyards	24
10. A Comparison	25
III. Yield and Production	26
A - The State of Data and Information	26
B - Yield of Grapes	27
C - Total Production	29
D - World Production Situation	32
IV. Utilization of Grapes	34
A - Utilization Pattern	34
B - Afghan Raisin Industry	36
1. Ideal conditions	36
2. Needs and Economic Justifications	37
3. Fulfill the Requirements	38
4. Raisin Making	38
5. Raisin Cleaning, Grading and Packing	40
C - World Utilization Situation of Grapes	42

	<u>Page</u>
V. Marketing of Grapes and Raisins	43
A - General Information	43
1. Importance	43
2. Season	43
3. Marketing procedure	44
4. Market information	45
5. Roads and transportation	46
6. Storage	46
B - Domestic Markets	47
1. Main markets	47
2. Prices	47
C - Exporting Grapes and Raisins	51
1. Export markets	51
2. Volume of export	52
3. Export prices	54
4. Growth in export	56
D - World Export/Import Situations	57
1. Total export	57
2. Importing countries	58
3. Growth and trend in world trade	60
4. Competing countries	60
E - The Economics of Grape Production & Marketing	62
1. Estimating costs and returns of grape production ..	62
2. Added costs and returns	64
3. Recent developments	65
4. All-grape strategy	66
5. Fresh grapes versus raisins	66
6. Grape farming and small farmers	67
7. Business margin	68
VI. Potential, Problems, and Prospects	69
A - Ideal Conditions and Vast Potentials	69
1. Growing conditions	69
2. Excellent market opportunities	70
3. Greatest yield and production potential	71
B - Main Problems	71
1. Agricultural	71
2. Marketing	73
3. Higher prices and low purchasing power	74
4. Organization	75

	<u>Page</u>
C - Prospects	75
1. Yield, production, and quality	75
2. Marketing	76
3. Afghanistan's comparative advantage	76
Appendix	78
1. Meteorological Data	78
2. Grapes of Afghanistan	79
3. Grapes of Kandahar	81
4. Grapes of Kohdaman/Parwan	82
5. Grapes of North of HindoKush	83
6. Grapes of Herat	84
7. The Approximate Cost of Exporting Raisins to C&F and UK	85
8. Export of Raisins and Grapes by Main Customhouses	86
9. Calculating Commercial Production of Grapes by main Producing Zones Using Export Data	87
10. Export of Raisins by Countries	88
11. Commercial Production of Major Raisin-Producing Countries	90
12. Export of Raisins by Type	91
13. Approximate Profit of Exporting Fresh Grapes to Pakistan	92
14. List of References	93

I. Summary and Recommendations

A. Summary

1. The climatic, topographic, and soil conditions of many parts of the Republic of Afghanistan that are situated below an altitude of 2400 meters above sea level are ideal for grape farming.
2. The most important grape-growing areas are Kohdaman/Parwan valleys, Kandahar, Sangcharak, Ghazni, Qaisar and Chireen Tagab in Faryab Province, Herat, Logar (Charkh), Dawlat Abad, and Nahreshahi in Balkh Province, and Peroze Nakhcheer in Samangan Province.
3. Although reliable statistics are not available, the latest estimates put the total vineyard area which has substantially expanded in recent years around 70-80,000 hectares, accommodating about 100 million vines.
4. National averages for vineyard size and grape yield has been respectively estimated at 1000 vines (about 4 jiribs or .8 ha) and 4 kg per vine (about 5 MT per ha) inclusive of all ages and all types of grapes. Yields of 10-14 kg per vine have been obtained by a large percentage of farmers applying simple improved viticultural practices while under optimum improved conditions, very good yields of 21-28 kg per vine have been enjoyed by farmers, indicating a great potential for yield increases and a bright future for the development of grape production in the country.
5. Based on recent estimates and calculations from export of raisins and fresh grapes, and estimates of domestic consumption, the total annual production of grapes (in fresh form) has been put in the range of 240-280 thousand metric tons (MT), of which 80-90 percent is of the famous seedless Kishmishi type.
6. There are about 45 different varieties, but 80-90 local types of grapes grown in Afghanistan. The ones that have commercial importance in raisin production and fresh consumption are common Kishmishi, Hussaini, Aita, Shindokhani, Black Kishmishi, Toran Kandahari, Gholadan, and Munoqa.
7. Based on 1352 export statistics, which are quite reliable, the export earnings of grapes and raisins were about \$39.2 million to the country. This is about 25 percent of the total foreign exchange earnings which is reported at \$159 million for that year.

8. About 75 percent of the total annual grape production is processed into raisins, with an average grape-to-raisin conversion ratio of 4:1, and from 70-80 percent of the total crop is exported in both raisin and fresh forms.

9. Afghanistan produces many kinds, qualities, sizes, and colors of raisins. The bulk of the raisin production is of the seedless Kishmishi type which is the same as Sltana of Australia, Greece, Turkey, Iran, and Thompson's seedless of California.

10. The main types of raisins are:

- a. Seedless Red Natural
- b. Seedless Golden Green Natural
- c. Seedless Long Golden Green
- d. Seeded Large Golden Green
- e. Seedless Black Natural
- f. Seeded Long Red Natural
- g. Seeded Large Red Natural

11. Afghanistan is capable of producing many of the raisin producing grapes in commercial quantity. It has long, hot, and rainless summer and fall seasons in its grape-growing areas. It possesses ample cheap labor. By making better use of the greatest yield potential and market opportunities, Afghanistan can become the raisin capital of the world.

12. During the past 20 years, Afghanistan has been the sixth largest raisin exporter of the world. In 1973, only Greece and Turkey exported more raisins than did Afghanistan.

13. India and Pakistan have traditionally been the export markets for Afghan fresh grapes. Iran has just emerged as a new market in the current season. USSR has occasionally imported fresh grapes from Afghanistan. The total volume of fresh grapes, exported in 1973 was 33,000 MT.

14. The largest volume of Afghan raisins is exported to the USSR, followed by India, Pakistan, and the UK, Peoples Republic of China, and other European countries. In 1973, Afghanistan exported 38,600 MT of raisins.

15. The volume of export of both raisins and fresh grapes during the period of 1338-1352 has fluctuated from year to year. The highest volume of fresh grapes exported was 53,600 MT in 1350 (1971) and for raisins, 38,600 MT in 1352 (1973). Assuming the average export of

1338-1340 as a base, the annual growth in the export of fresh grapes and raisins for the past decade and a half has been 5.0 and 5.8 percent respectively.

16. The export prices of both raisins and fresh grapes have substantially increased during the past 15 years. They have increased from \$82.33 per MT and \$220.67 per MT (average base prices of 1338-40) for fresh grapes and raisins to an average of \$267 per MT and \$787 per MT in 1352 for these products, respectively. This indicates a rate of annual growth in prices of 9.47 percent for fresh grapes and 10.28 percent for raisins.

17. The value of export during the same period has grown from \$1.46 million (average value of base period) to \$8.81 million in 1352 for fresh grapes (showing an annual rate of growth of about 14.83 percent), and from \$4.05 million to \$30.40 million in 1352 for raisins indicating an annual rate of growth of 16.77 percent.

18. Domestic prices for raisins and fresh grapes have also increased substantially in recent years. The average retail prices (Kabul market) ranges from 20 afs per seer and 57 afs per seer for fresh grapes and red raisins in 1340 to 109 afs per seer and 231 afs per seer in 1352 for fresh grapes and red raisins, respectively.

19. Afghanistan has the greatest potential for increasing its grape and raisin production in the future. To produce these commodities at the cheapest possible cost and better quality, the wisest policy would be to concentrate on increasing yield in the existing vineyards.

20. World demand for raisins is increasing. With other major raisin producing countries shifting their emphasis toward increasing their wine production, Afghanistan has all the potential and opportunity to capture a much larger share of the world raisin market. What is urgently needed is the creation and maintenance of a progressively improving business image in the world market by exporting high-quality, clean, and standard grades of raisins at the proper time and acceptable conditions at the markets.

B. Main Recommendations

1. The establishment of a Viticultural Research Institute to plan and implement adaptive research programs on various important agricultural, processing, and marketing aspects of grapes and grape products is urgently needed before it is too late.

2. Measures to remedy (a) the shortage and secure availability of water and (b) the drainage of excess water in the panjwayee and other parts of Kandahar have to be actually adopted.

3. A well-planned scheme to reduce the damage annually caused by bees, birds, and rodents to the grape crops has no less or economic significance than controlling of diseases such as powdery mildew and anthracnose which is recommended to be actively followed on a sustained basis in the affected areas.

4. The trend of replacing vines of other varieties to the most commercially-important variety of Kishmishi and the further expansion of Shindokhani vineyards in Kandahar, Zabul, and even Parwan and Kohdaman areas, particularly for fresh export should be vigorously encouraged.

5. The production of Kishmishi and Shindokhani grapes on larger commercial scale for export purposes in fresh form to Iran and raisin form to other countries, has to be given utmost attention and consideration.

6. Due to the importance of animal manure in commercial grape farming, it will be very profitable to encourage, finance, and support farmers in the grape growing areas to invest in developing small scale animal production activities as a source of additional income, better nutrition, seasonal employment, plus manure as a valuable by-product.

7. The effective operation in the country of a well-planned and full-pledged Grape Development Project to look after and coordinate various production and processing stages of grapes cannot be over emphasized. Tapping the yield potential of the existing vineyards based on intensive viticulture, thus providing more benefits to its small farmers, should be the main production objective of this project. A comprehensive and complete survey of the grape-growing areas of the country and a regular annual crop reporting service would form some of the important functions of this project.

8. The drying of red raisins off the bare ground must be introduced, encouraged, and rapidly popularized throughout the country. Measures such as the provision of mats, etc., on easy credit terms, buying the raisins dried off the ground at higher prices on contract basis, publicity and other incentives, should be exercised.

9. The chemical drying of raisins for the production of golden colors and shortening the period of drying, which has passed its experimental stage very successfully in Kohdaman, should be encouraged.

10. The establishment of a National Grapes and Raisin Board to coordinate, supervise, and promote the related production, processing, and marketing activities of grapes and raisins in the country, seems to be a necessary and useful step. This board will be responsible to (a) correct the problems already existing in exporting raisins and grapes, domestically, in foreign markets, and in transit, (b) further improve the existing trade conditions, (c) finding new markets for Afghan raisins and grapes abroad and (d) other promotional activities both in the foreign and domestic markets.

11. Grape farmers need both production credit to procure chemical fertilizers, fungicides, other chemicals, etc., and marketing credit to prevent them from selling their raisin crop at low prices in advance. The need for such credit is more intense for small farmers.

12. Grape farmers, especially the small ones, have to get organized in order to make the maximum use of credit facilities, technical services, and be able to sell their product in the most suitable prices and terms. Cooperatives, if properly organized and managed, seem to be of utmost necessity and value in this highly commercial enterprise.

13. For a highly commercial farming enterprise such as grapes, the development of a relatively extensive farm-to-market road network to facilitate the movement of goods and services to and from the vineyards and villages is an essential requirement.

14. An average of about 90 percent of the total annual grape crop is marketed for cash. A reliable market information service to provide farmers with information regarding current and future prices of fresh grapes and raisins both in the foreign and domestic markets can not be over-emphasized.

II. Introduction

A. General Background

1. Grape farming is one of Afghanistan's high-income, specialized, labor-intensive and integration-demanding rural enterprises. Grape production, processing, and marketing involves many people from a number of professions, skills, and walks of life.

Grape farming or viticulture is a good example of an agricultural business whose proper development necessitates both vertical integration (coordination of the production, processing, and marketing activities) and horizontal integration (coordination of the provision of technical, credit, marketing, cooperative, public information, and other community development services).

2. Afghanistan has gained a worldwide reputation for producing high quality grapes especially seedless ones. The varietal richness and the multitudes of conditions under which grapes are produced make grape farming an area of great opportunity for Afghanistan and an interesting and potentially very productive field of scientific research for Afghan as well as international viticulturists and scientists.

Viticulture is one of the oldest farming occupations of Afghan people. Over the years, grape culture has undergone several changes bringing it to the present state. This report, however, focuses on the state of the grape industry in Afghanistan during the last decade and a half. (1338-1352 or 1959-1973)

B. Economic Importance

3. Grapes are a cash crop for farmers, a business-creating and export commodity for tradesmen, a source of seasonal employment for workers, and a foreign exchange earner for the country. Of the total annual production of grapes, 70-80 percent is exported, of which about 75 percent is in the form of raisins.

The export of fresh grapes and raisins of the 1352 (1973) crop brought the equivalent of about \$39.2 million of foreign exchange to the country. This is about 25 percent of the value of total exports and 28 percent of the earnings from exports of agricultural products of the country.

4. In 1352 (1973), the export of fresh grapes amounted to about 40 percent of the total fresh fruits export and the export of raisins constituted about 31 percent of the total export of dried fruits and nuts. (See Table 1 for detail.)

Table 1. Relative Importance of Raisins & Grapes Export Compared to the Export of other Principal Merchandise of Afghanistan
Based on 1352 (1973) Export Data

<u>Commodity</u>	<u>Quantity</u>	<u>Value in Million U.S. Dollars</u>
1. Raisins	38600 MT	30.399
2. Natural Gas (million M ³)	2750	17.985
3. Karakul Skin (1000 pelts)	957	16.837
4. Carpets & Rugs (1000 M ²)	512	14.473
5. Fresh Fruits (other than grapes)	65578 MT	13.094
6. Grapes (fresh)	32986 MT	8.807
7. Almonds	3722 MT	7.235
8. Cotton (lint)	9780 MT	7.221
9. Wool & Other fine animal hair	3294 MT	5.818
10. Hides & Skins (1000)	2328	5.668
11. Walnuts	6061 MT	3.608
12. Oil Seeds	11465 MT	3.597
13. Pistachios	1204	3.378
14. Medical Herbs	3809 MT	2.395
15. Natural Gums	578.9 MT	2.374
16. Apricot Kernels	1490 MT	2.252
17. Fur Coats	193000 Pieces	1.958
18. Sausage Casing (1000 coils)	1965	1.487
All Exports		<u>159.102</u>

Source: Export of Merchandise, 1352 (1973) Ministry of Commerce, Kabul
Republic of Afghanistan

C. Climate and Topography

5. Afghanistan's dry and continental type of climate which is further characterized by having plenty of sunshine, warm dry and windy summers and generally cold winters, provides the country with the sort of climatic conditions which are one of the best in the world for the production of many kinds of high quality fruits, particularly grapes. Because of altitudinal differences of the land ranging from 250 meters (in the northern parts) to 3400 meters (in the central part) above sea level, and due to the mountainous nature of the terrain of the country, the climate is divided into many micro climates varying in temperature, precipitation, winds, and periods of vegetative growth. These variations in turn have resulted in the establishment of many agricultural regions and have caused the concentration of different crops in different regions.

6. Total annual precipitation, mostly in the form of snow, averages at about 300 mm in normal years. Almost all of the precipitation falls during the four months' period of January to April, inclusive. The other eight months of the year, May-December, are usually dry and with clear skies.

D. Climate and Grape Growing

7. Climatically speaking, there are very few areas (mostly the higher altitude areas of central Afghanistan where growth period is short and winters are long and severe) in the country where grapes cannot grow. All other areas situated at and below 2400 meters above sea level normally have the climatic conditions ranging from "ideal" to "possible" for grape production. The climate of the existing main grape growing areas such as Kandahar (and its adjacent areas) and Kohdaman, Parwan valleys is ideal, ^{and} one of the best in the world. Conditions in the grape growing areas of Jozjan, Faryab, Herat, Logar and Ghazni provinces -- and similar areas in other provinces -- come next to ideal. The excessively warm climate of Nangrahar, Nimroz, Farab Helmand and Laghma provinces provides the least suitable but still possible conditions for grape production in the country. Dr. Herald Olme of the University of California at Davis who is recognized as a world leader in the field of viticulture and has spent about six months studying and collecting grapes in Afghanistan, considers climatic conditions ideal for grapes and raisins production in the nation.

8. In spite of generally ideal climatic conditions, grape growing is concentrated in specific areas even in the provinces enjoying the most ideal climate for grape production. (See attached map) This phenomenon is a clear indication of the fact that besides the influences of region-wide climate, conditions such as micro climate, land and soil characteristics, availability of

adequate water supply, accessibility to market and comparative advantage in the use of scarce water and land resources have all, to various degrees, been influential in the concentrated pattern of grape growing areas in Afghanistan.

9. But region-wide or even province-wide climates and provincial boundaries are not to be considered comparable with the grape concentration areas, since no region or province, even under the umbrella of ideal climate, is fully devoted to grape culture. The coverage of concentration of vineyards vary from region to region and climate to climate ranging from conspicuously recognized grape growing areas such as Kohdaman/Parwan valleys and Kandahar to localized and patchy nature of vineyard areas as in Logar (Charkh District) and Ghazni provinces, where winter is so severe that vines are usually completely covered by mud or straw to protect them against winter damage. This practice results in extra cost and trouble to the vineyard owners of these areas.

A detailed climatic description of Kabul province (where Kohdaman Valley is the most important district or woleswali), based on data of Kabul meteorological station, is presented in Appendix 1. This represents one of the ideal climates for grape growing in Afghanistan.

Table 2 presents the precipitation and temperature pattern reported from the various meteorological stations throughout the country.

E. Agricultural Features

10. Grape farming in Afghanistan is a highly intensive, area concentrated activity. Of the total estimated 2.6-2.9 million hectares of irrigated farmland in the country, vineyards occupy about 70-80 thousand hectares (or about 3 percent). Vineyard area has been rapidly increasing during the past few years and is expected to increase further in the future. Irrigation water for vineyards comes from rivers, springs, and *karazes* (primitive underground channels dug for the purpose of utilizing underground water). There are roughly about 100-120 million vines of many varieties and several types in the country.

1. Grape Growing Areas

11. The two most important grape producing areas in Afghanistan are Kohdaman/Parwan valleys and Kandahar. Areas such as Sangcharak/Saripul in Jozjan province, Syourai, Arghandab, Shajoi, and Qalat in Zabul province, Qara Bagh and Moqur in Ghazni province, Charkh in Logar province and many areas in Herat, Faryab, and Samangan provinces also have varying volume of commercial production of grapes.

Table 2: Precipitation and Temperature Pattern Recorded in the Meteorological Stations of the Country

Station	Elevation in Meters <u>Above Sea Level</u>	Precipitation Avg. Annual in mm		Precipitation ^{1/} Average of		Annual Temperature in C ^o		
				Summer	Fall	Mean	Abs. Max	Abs. Min
Kabul	1803	334.9	(10)	5.8	28.5	12.1	36.4	-17.3
Jabaluseraj in Parwan	1630	407.0	(4)	7.5	30	15.4	36.2	-10.3
Kandahar	1005	119.0	(10)	0	14	19.0	44.0	-8.1
Ghazni	2183	318.3	(10)	15.7	10.5	10.0	36.0	-26.0
Logar	1935	212.3	(4)	5.0	18.1	11.0	37.0	-28.1
Kalat	1564	234.1	(4)	5.1	13.2	14.5	40.4	-14.4
Lashkar Gah	780	97.1	(4)	0.3	7.6	20.0	46	-9.0
Farah	700	114.2	(4)	0	5.5	21.0	46.5	-9.0
Herat	964	237.3	(10)	0	16.7	16.0	42.0	-16.1
Maimana	815	357.9	(10)	0.07	26.3	14.1	41.0	-17.0
Shiberghan	360	201.3	(10)	0	17.8	16.0	44.0	-16.2
Mazar-i-Sharif	378	181.5	(10)	0.05	13.8	17.0	44.1	-16.0
Baghlan	550	316.4	(4)	1.3	25.5	15.0	42.0	-17.2
Qunduz	455	311.2	(10)	0.3	25.5	16.2	44.2	-19.2
Taluqan	804	657.2	(4)	13.7	58.3	15.0	43.0	-18.0
Faizabad	1200	464.3	(4)	19.3	53.5	14.0	41.3	-16.0
Jalalabad	580	166.0	(4)	11.7	21.2	21.4	45.4	-1.5
Bamiyan	2550	210.2	(4)	31.2	27.7	7.0	31.0	-24.3
Shahrak	2325	262.4	(4)	3.4	19.5	5.0	32.5	-41.3

^{1/} The precipitation indicated occurs in late fall, mostly after the later part of November when raisin drying is almost finished.

Source: Afghan Meteorological Institution

Note: Precipitation data show an average of 10 years while temperature data of 4 years.

13. Reliable statistics on the hectareage of vineyard and number of vines in Afghanistan are not available because grape farming has not yet been comprehensively surveyed. However, a number of Afghan and international experts have visited most of the grape growing areas and have made estimations of the distribution of vineyards in various grape growing areas of the country. Based on these estimates, particularly those of Marcel Jelaska, FAO/PAUCCA viticulturist who has spent more time (about 4 years) than any international viticulturist teaching, experimenting, and studying grape growing in Afghanistan; the interviews by the writer with many knowledgeable Afghan farmers and technicians; and the experience of the writer himself, the zoning, hectareage and distribution of grape growing areas of Afghanistan are presented in Table 3. Based on these estimates, the eastern zone is the largest grape growing area, comprising about 27.5 percent of the country's total 81300 hectares of vineyards. The southern area is the next largest (25.8 percent), followed by the northwestern (20 percent), western (11.8 percent), southeastern (7.5 percent) and northern (6.5 percent) zones. Due to the rapid expansion in the vineyard area, the above percentages are subject to change in the coming years. Table 4 shows the area of grapes and number of vines by province.

2. Varieties

13. Afghanistan produces many varieties and various kinds of European type (*Vitis vinifera*) of grapes. Krochmal and Nawabi (1) have reported 45 distinct grape varieties grown in the country. But recent information indicates that there are about 80-90 different kinds and types of grapes varying from each other in size, shape, color, taste, and other characteristics. The most important varieties that have commercial and export value both to the farmers and to the country are: (a) Kishmishi, (Thompson's seedless or Sultana), (b) Aita, (c) Hussain (d) Black Kandahari, locally called "Toran", (e) Kohdamani Kandahari, (f) Katta, (g) Gholadan, and (h) Munaqa.

14. Of all the varieties mentioned above, only Kishmishi is seedless; the rest are all seeded grapes. The remainder of the varieties and kinds not mentioned above are grapes of highest quality and tenderness and are thus grown for home consumption and sale to the local markets. Most of the grape varieties have a wide range of adaptability capable of growing in many of the grape growing areas of the country. Kishmishi, Hussaini, Munaqa, Soyebi, and Khalili are examples of these types. Some other varieties, on the other hand, are limited to specific growing conditions.

The Kandahari, Katta (Shakardara area) and Gholadan of Kohdaman and Aita, Raucha, Khalchini, and Toran of Kandahar are examples of such varieties.

TABLE 3. Zoning and Distribution of the Grape Growing Areas of Afghanistan

No.	Viticultural Zone (1)	Provinces (2)	Hectares of Vineyards (3)	Main Grape Growing Areas and Concentration of Vineyards (4)	Small Scale Vineyards (5)
1	Eastern	Kabul	14,000	Kohdaman including Qarabagh, Dehsabz and Charasia, Shakar Dara	
		Parwan	8,000	Bagram, Charikar, Jabaluseraj, and Kohistan	
		Logar	440	Charkh, Zarghoonshahr, Patkhwab, Shana	
		Nangrahar & Laghman	100	Kunar-i-Khas	
		TOTAL	<u>22,540</u>		
2	South-eastern	Ghazni	6,000	Moghai, Ispandi, Qarabagh, Khoja Umri, Deyak, etc.	
		Paktia	10	Zurmat	+
		TOTAL	<u>6,010</u>		
3	Southern	Kandahar	21,000	Arghandab, Panjwayee, Dand, Maiwand, Khakrez	
		Zabul	1,000	Shinkai (Syourai), Arghandab, Shajoi Mizan, Qalat	
		Helmand-Nimroz	10	Nad-i-Ali	+
		TOTAL	<u>21,010</u>		+

TABLE 3. (contd)

	(1)	(2)	(3)	(4)	(5)
4	Western	Herat	8,000	Enjil, Gozara, Pashtoonzarghoon, Obe, Ghoryan, Zendejan, & Gulran	
		Farah	1,600	Khas Farah, Balabeluk, Shindand, Farahrode	
		Badghis	10		+
		TOTAL	<u>9,610</u>		
5	North-western	Faryab	5,000	Qaiser, Almar, Shirgen Tagab, Pashtoonkut, Andkhoy	
		Josjan	10,000	Sangcharak, Saripul, Shiberghan, Aqcha	
		TOTAL	<u>15,000</u>		
6	Northern	Balkh	3,800	Balkh, Dawlatabad, Nahreshahi	
		Samangan	400	Peroze, Nakhcheer	
		Eaghlau	20		+
		Kunduz	1,000	Archi, Kunduz	+
		Takhar-Badakshan	60	Taluqan, Chayab	+
		TOTAL	<u>5,280</u>		
7	Central	Ghore			+
		Orozgan	<u>10</u>		+
		Bamiyan			
GRAND TOTAL		89,450 Hectares			

Table 4 - Approximation of Area and No. of Vines in Various Provinces of Afghanistan

	<u>Province</u>	<u>Estimated Area</u>	<u>Average Estimated No. of vines per ha.</u>	<u>Approximate No. of vines</u>
1	Kabul	14000 Ha	1500	21.0 million
2	Parwan	8000 "	1500	12.0 "
3	Ghazni	6000 "	1500	9.0 "
4	Logar	440 "	1500	.7 "
5	Kandahar	21000 "	1375	28.8 "
6	Zabul	1000 "	1375	1.4 "
7	Herat	8000 "	1375	11.3 "
8	Farah	1600 "	1375	2.2 "
9	Jozjan	10000"	650	6.5 "
10	Faryab	5000 "	1375	6.9 "
11	Samangan	400 " over	2500	1.0 "
12	Balkh	3800 "	650	2.5 "
13	Kunduz	1000 "	1375	1.4
14	Others	160 "	1500	.4 "
<hr/>				
	Total	80500 Ha		
	Average		1300	<u>105</u> million
<hr/>				

Source: Table 3.

A detailed list of all grape varieties and types of grapes and separate lists showing the distribution of grape varieties in various grape growing regions in Afghanistan are presented in the appendices 2-6.

15. In addition to the distribution of grape varieties on the basis of growing condition into various grape growing areas, Afghan grapes can be classified under groupings such as:

- For home consumption (HC)	For local markets (LM)	For export (Ex)
- Table grapes (T)	Raisin grapes (R)	Table & raisin grapes
- White-yellow-greenish(W)	Red-rose colored	Black
- Seedless	Seeded	
- Early Maturing	Medium maturing	Late maturing
- Long (L)	Round	Oval
- Small (S)	Medium	Large

Considering the above groupings, some of the important and well-known grapes of the country are presented in Table 5.

16. Kishmishi is the most dominant, has the largest coverage and widest adaptability of all grapes in the country. The most recognized Kishmishi grapes are common Kishmishi, Shindokhani, Red Kishmishi, and Black Kishmishi. The common Kishmishi, which is called just "Kishmishi" in the eastern zone, "Gerdak" in Kandahar, and Kishmishi Safid in the northern parts, is the major type. The Shindokhani was originally one of the minor grapes of the Kandahar area, but in recent years not only has its coverage expanded in Kandahar, but it has also spread to Zabul and Kohdaman areas. Red and Black Kishmishi, though of smaller coverage, are to be found in Kandahar and the northern parts of the country, respectively.

3. Maturity and Quality

17. The earliest maturing grapes are Khalcheeni and Raucha, mostly grown in the Kandahar area. These varieties mature and appear in the market some time late in May. The earliest maturing grape of the eastern zone,

mainly Kohdaman area, is Kandahari, which appears in Kabul markets at about the same time (mid-July) as Toran of Kandahar does.

The latest maturing variety is Katta of the Shakardara (Kohdaman) area. This variety matures at the end of the Kishmishi grape season sometime in late October. Kishmishi and all other varieties mature during the period between the two earliest and latest dates.

18. The highest-quality grapes, as far as local preference is concerned, are Lal, Soyebi, Khalili, Fakhri, Red Kishmishi, Hussaini, Shundo-khani, common Kishmishi, Aita, and some others depending on personal taste. Generally, the higher the quality of grapes, the lower its commercial value, thus limiting its coverage and production. The same kind of correlation exists between the quality and yield.

4. Size of Vineyard

19. The size of a vineyard is usually expressed in terms of number of vines in the Kohdaman/Parwan valleys, but the number of rows, locally called "joya", in the Kandahar area. Whatever the terms may be, there are three points about the size of vineyards in Afghanistan that should be emphasized:

- a. Vineyard sizes vary from zone to zone.
- b. Present vineyard size is generally smaller than it was in the past. Future sizes may become even smaller. This is due to the prevailing inheritance principle which leads to the division and fragmentation of holdings of father to his sons and daughters, after his death or even during his lifetime.
- c. The national average size has been reported to be in the neighborhood of 1000 vines covering about 0.8 hectares (about 4 jiribs) of land area.

20. Vineyard size in Kandahar area is usually larger than in Kohdaman/Parwan and other similar areas. The largest size in Kandahar area has been reported to reach 1200 joya, equivalent to 24,000 vines (each joya holds 20 vines), while the average size ranges from 100-150 joya (2000-3000 vines). Vineyards having 800-1000 vines are small-size vineyards. There are families that have more than one vineyard.

Table 5 - Qualitative Grouping of Grape Varieties of Afghanistan

<u>Variety</u>	<u>Consumption Pattern</u>	<u>Utilization Pattern</u>	<u>Color</u>	<u>Seeding</u>	<u>Maturity</u>	<u>Size</u>
Kishmishi						
a. Common	HC, LM, EX	T & R	W	Seedless	Medium	oval medium
b. Shundo Khan	" " "	" "	W	"	"	long medium
c. Black	" " "	" "	Black	"	"	oval medium
d. Red	HC, LM	T		"	"	oval medium
Hussaini	HC, LM, EX	T	W	Seeded	"	long large
Aita	" " "	T & R	W	"	"	long large
Toran	" " "	" "	Black	"	Early	oval medium
Kandahari	" "	T	Black	"	"	oval large
Katta	" " "	T	W	"	Late	round large
Gholadan	HC, LM, EX	T & R	Purplish/ white	"	Medium	round large
Munoqa	" " "	" "	Black	"	"	long large
Lal	" "	T	White & Pink	Seedless & Seeded	"	round large
Khalili	HC	T	White	Seedless	"	oval large
Soyibi	HC, LM	T	Red	Seeded	"	long large
Askari	" "	T	W	Seedless	"	oval medium
Raucha	" "	T	W&Red	Seeded	Early	oval medium
Tandan	" "	T	W	"	Medium	round large
Taifi	" "	T	Pink	"	Late	long large
Shonetak	" "	T	W	"	Medium	round large

21. Kohdaman/Parwan and other grape growing areas differ from Kandahar in this respect that the average and small-size vineyards have fewer vines. Most of the vineyards in these areas would probably fall in the 1000-2000 vine range. There are vineyards that have as few as 200 vines.

22. In the absence of a comprehensive survey of vineyards in the country, it is rather difficult to present a correct picture of classification of vineyard sizes. The best that can be presented here would be an educated guess on this subject.

<u>Classification</u>	<u>No. of Vines</u>	<u>Percent of Total Vineyards</u>
1. Very small vineyards	200-500	20
2. Small vineyards	500-1000	40
3. Medium vineyards	1000-3000	28.8
4. Large vineyards	3000-7000	10.0
5. Very large vineyards	7000-15000	1.0
6. Extra large vineyards	above 15000	0.2

4. Competing Crops of Grapes

23. Competing crops in this report is referring to those crops which are grown in the same area with grapes competing for land, water, and farmers' resources and attention. Under Afghanistan's condition, the most critical item is not land, but rather water, production inputs and farmers' attention. In most parts of Afghanistan water is a scarce resource. This is particularly true in the areas where grapes are produced.

24. In the grape producing areas of the country, no single crop can take the place of grapes and produce the same level of income with the given amount of investment, labor, and prevailing conditions. Thus, the best crop to be grown next to grapes in these areas is the one which will not compete with grapes for water and other inputs such as animal manures which are already scarce, but would enable the farmer to make the best use of his scarce resources.

Wheat is a clear example of such a crop. Thus, wheat planting, in the grape growing areas, begins when grapes stop using irrigation water. Likewise

irrigation for grapes begins when wheat is nearing its maturity. Thus, wheat farming, for a vine farmer, is considered to be complementary or companionship farming to grape production rather than a competing one. However, crops such as fruit trees (pomegranates in Kandahar, apples in Kohdaman), vegetables, corn, and other summer crops compete with grapes for water, labor, investment and farmers' attention.

6. Waste and Losses

25. To varying degrees, grape yield is annually reduced and damaged by fungus, insects, rodents, birds, frost, and shortage of irrigation water. Fortunately, few of these calamities have regular occurrences, and their incidence is mostly sporadic. The two fungus diseases of powdery mildew and anthracnos are the most dangerous enemies of grapes in Kohdaman/Parwan valleys and north of Hindu Kush. In years when weather during the spring season is relatively moist and warm, these diseases, if uncontrolled, can cause great losses to the grape crop. Happily, these diseases, in the first place, do not have yearly incidence, and on the other hand they can now be controlled. In Kandahar area and other grape growing areas, these diseases have not caused any noticeable damage to the grape crop.

26. In warmer areas of the country, wasp and bumblebees damage grapes resulting in crop reduction and quality deterioration.

Frost damage, and crop reduction due to shortage of irrigation water, are both quite familiar problems to the grape growers of Afghanistan. But fortunately these phenomena do not occur every year and when they do occur, they are usually of local nature, damaging certain pockets and reducing only a portion of the crop.

Loss of grapes caused mechanically by the abrasion of grape bunches with the ground is a common phenomena.

While the causes of waste and loss to the grape crop are well known, and losses varying from year to year do occur, until now no reliable estimate has been made of the volume of wastage.

7. Cultural Practices

27. Viticultural practices in Afghanistan, while mostly traditional and resulting from many years of experiences of the farmers themselves, vary from region to region and sections within the same region, depending upon local climatic and land situations. Viticultural practices include: (a) system of planting, (b) manuring, (c) irrigation, and (d) pruning, shaping and thinning.

a. Planting System

Traveling throughout the grape growing areas of the country one can observe, even for the same varieties, at least three main systems of planting, each designed to suit the particular conditions of the region concerned. The most common systems are the round-top supportless system practiced in Kohdaman/Parwan area and other parts of the eastern region, and the high-ridged spread-branched system prevalent in the northern, southwestern, and western regions. The first system is characterized by growing vines in the middle of a moderately elevated (about .50 - .75 meters above the ground level) ridge, mostly spaced at 2.00 x 2.00 - 2.75 x 2.75 to even 2.00 x 3.00 meters.

In the second system, the vine is grown at the bottom of a ridge elevated at about two meters from the collar of the vine. Spacing is usually from 2.00 x 3.50 (Kandahar area) to 3.25 x 3.75 meters (most of northern zone). The vine grows climbing over the ridge and spreads its branches over the flat background of the ridge, while the ridge keeps the fruits off the ground, protects the grapes from intense sun, heat, and the branches from falling and breakage by the wind.

The third planting system is that of "chaila" (traditional trellising) system by which, contrary to the other two systems mentioned, both the branches and the grapes are kept off the ground. There are two types of the chaila system. The most common one is the perpendicular type and the other one is the bow-shaped type observed in the Peroze-Nakhcheer area of Samangan Province. To support the vine, the first type uses wood poles, mud walls and/or brick pillars on the side and sticks on the top, while the second type is wholly constructed of wood, mulberry branches to form the bow structure with reed sticks on the sides to support the vine. In spite of producing high yield of high quality grapes, the chaila system, because of its extra expenses and labor involved, is expanding very little, if at all.

b. Manuring

For many years it has been known that the application of manures to grapevines results in higher yields and good quality grapes. Dirt from old walls, fresh dirt from the ridge opposite the vine in the vineyards, barnyard manure, dried blood, green legume bushes, and though of recent origin, chemical fertilizers -- have all, in various quantity, been used to fertilize grapevines. As a matter of fact, grape farmers are the ones who first adopted the use of chemical fertilizers in Afghanistan.

Which and how much of the above-mentioned fertilizing material is used depends upon the secured supply of adequate irrigation water, availability of fertilizing materials, and in the case of chemical fertilizers, credit facilities.

Barnyard manure is a well-accepted material by almost all grape farmers, especially in Kandahar, Kohdaman/Parwan and other grape growing areas in the eastern grape zone. The largest quantity and the most widespread use of barnyard manure is in Kandahar. Even here vines are usually manured every other year. Kohdaman/Parwan not being as large and good a livestock raising area as Kandahar, is very much short of this important fertilizing and soil improving material. In the northern grape growing areas of the country, due to the shortage of water, barnyard manure is seldom used. Instead, a soil (dirt) changing operation by which the dirt around the collar of the vine is exchanged for fresh dirt from the ridge opposite the vine. Some farmers bury a bunch of some green leguminous bush at the bottom of the vine for fertility purposes.

The use of chemical fertilizers in grapevines is concentrated in Kohdaman/Parwan area. In Kandahar, chemical fertilizer is used only by a very few grape farmers. The writer was told by some experienced farmers in Kandahar that Kishmishi grapes receiving chemical fertilizer do not keep as well in transport to the foreign markets. In addition, the farmers said, the use of chemical fertilizer makes the green raisin look blackish, which is not a desirable color. This attitude of farmers, whether a myth, a reality, or the result of wrongdoing, is the obvious reason why the use of chemical fertilizer has not received widespread adaptation in Kandahar vineyards.

Even in Kohdaman/Parwan very few farmers ever observe the proper ratio of fertilizer use, inclining more toward the use of nitrogenous fertilizer. On the other hand, fertilizer adoption has not progressed as was

expected. The main reasons for the recent slow rate of adoption and popularization of a proper ratio of fertilizer use can be attributed to the uncertainty and/or shortage of irrigation water and the lack of an efficient extension program in the area.

c. Irrigation

With the exception of a few small hillside patches in Sangcharak, Maimara, and Chayab (in Takhar Province) and others in the northern parts of the country which altogether, compared to the overall Afghan grape growing industry, is negligible, grape farming in Afghanistan is all irrigated. The source of water, its quantity and timing of irrigation are different in different areas of the country. Rivers are the major source of irrigation. Vineyards in Kandahar, Parwan, Balkh, Faryab, and Herat Provinces along with Shiberghan and Saripul areas of Jozjan Province receive water from rivers. Kohdaman and Ghazni have karezes while Sangcharak and Peroze-Nakhcheer grape areas are irrigated by springs. Water deficiency is more felt where karezes and springs are the sources of water, and this constitutes one of the serious problems of the areas concerned. On the other hand, in areas of Panjwayee and Karz/Zakar areas of Kandahar Province, excess of water has now become a problem.

Timing and number of irrigations also vary from region to region. While winter irrigation, locally called "chelaab" (meaning irrigation in the chill of winter) is considered an important practice in grape farming and ranges from at least once to five times, summer irrigations which take place at water stress periods, are the ones that determine the final yield. Depending upon the availability of water, the number of summer irrigations for vineyards ranges from 1 - 2 in most of the northern areas to 5 - 6 in Kohdaman/Parwan valley. During the years when precipitation is below normal, areas such as Kohdaman, Sangcharak, and others that take water from karezes and springs are harder hit, resulting in reduced grape production.

d. Pruning, Shaping and Thinning

Except in the areas such as Peroze-Nakhcheer, where vines have to be covered early in the fall to be protected against winter damage and pruning is also done before the vines are covered (in Peroze-Nakhcheer it is done in October), in the rest of the country pruning takes place in early spring. Only experienced farmers are employed to do the pruning and maintain the shape of the vine. Nowhere in the country is thinning of grape bunches ever practiced.

8. Valuation of Vineyards

28. Vineyards are sold and purchased on the basis of number of vines rather than units of land area -- which is the case with respect to other farm lands. Price per vine varies depending on general location, water supply and its secured availability, and age of vines. A vineyard with young, full-bearing vines has a higher value per vine than a vineyard with old vines.

29. Presently, the average price per vine in Kohdaman/Parwan area ranges from 1,000 afs for young bearing ones to 500 afs for old vines. The value of vine-bearing land in this area, based on 1,500 vines per hectare, thus ranges from 1.5 million afs to .75 million afs per hectare (300,000 to 150,000 afs per jerib). On the other hand, the price of good farm land in the same part of the country does not exceed afs .5 million per hectare (afs 100,000 per jerib). Hence, the price ratio of vine-bearing land to farm land in the Kohdaman/Parwan area falls at about 3:1, while ten years ago this ratio was about 1.5:1.

9. Establishing Young Vineyards

30. The most marked difference between a young vineyard and an old one is in the manner in which the vines are spaced and have developed. Although spacing varies from one grape-growing area of the country to the other, young vineyards as a whole have not only wider spacing but more uniformity and regularity in spacing as well. Kandahar farmers continue to establish new vineyards in the same old high-ridged design leaving two meters between vines and 3.5 meters between rows (2.0 x 3.5). In Kohdaman/Parwan area the new spacing practice is 2.5 x 2.5 meters. Some new vineyards are planted even in a 3.0 x 3.0 meters spacing. The tremendous variations in spacing among the various grape growing areas of the country and among the numerous young and old vineyards of the same area is one of the strong reasons why "number of vines" instead of number of hectares or jerib has been customarily used as a unit of size, value, and yield of vineyards in Afghanistan.

31. There is no definite source where certified cuttings (canes) of grapes are produced in the country. Farmers wishing to establish new vineyards do their own searching in getting the superior quality cuttings from other vineyards. When planted, it takes about 4-5 years for the new vines to begin bearing grapes. During this period, the land is annually cultivated and is made use of in the production of annual crops.

10. A Comparison

32. Aside from zonal (regional) and provincial distributions of vineyards already mentioned, the most important sections or districts (at woleswali level or so), where a prevailing concentration of commercial vineyards is visible, are:

1. Central Kohdaman, Kabul Province
2. Qara Bagh, Kabul Province
3. Shakar Dara, Kabul Province
4. Bagram, Parwan Province
5. Charikar, Parwan Province
6. Panjwaie, Kandahar Province
7. Dand, Kandahar, Province
8. Arghandab, Kandahar Province
9. Syourai, Zabal Province
10. Central Ghazni, Ghazni Province
11. Charkh, Logar Province
12. Sang Charak, Jozjan Province
13. Qaisar, Faryab Province
14. Shireen Tagab, Faryab Province
15. Dawlat Abad, Balkh Province
16. Peroze-Nakhcheer, Samangan Province
17. Central Herat, Herat Province

33. If the sections with comparable conditions are grouped together and named as divisions, the following grape growing divisions are to be distinguished in the country:

1. Central Kohdaman and Qara Bagh
2. Bagram, Charikar and other areas in Parwan
3. Shakardara
4. Ghazni, Logar and Syourai of Zabal province
5. Panjwaie, Dand, and Arghandab
6. Dawlat Abad, other areas in Balkh province, Shiberghan, and Saripul of Jozjan province
7. Sangcharak
8. Qaisar and Shireen Tagab
9. Peroze-Nakhcheer
10. Herat

34. There are certain specifics about the grape growing conditions of each of the divisions. For example, Kandahar is known for sweeter, yellower, and more tender grapes, the larger concentration of Shundokhani type of grape, larger vineyard size, early maturity, and customary use of barnyard manure in the vineyards. Kohdaman is famous for having round-top vines, tighter spacing, and relatively higher incidence of diseases and frost. Sangcharak, Qaisar, and Shireen Tagab are found to be restricted in growing raisin-making, seedless white and black Kishmishi grapes, while Dawlat Abad, Peroze Nakhcheer, and other small patches in Balkh and Jozjan provinces predominantly grow table grapes for fresh consumption and marketing. Herat province has a reputation for growing many varieties and kinds of high-quality, delicious table grapes for home consumption and local markets only. Covering of vines with dirt, brush, and other herbacious materials against winter damage in areas north of Hindu Kush (northern zone), Ghazni, Logar, Parwan, and a small portion of Qara Bagh, is a necessary practice which is not of any concern in other grape growing areas of the country. Likewise, the damage of bees to grapes in the northern and southwestern zones and that of rodents in the northern zone seems to be of more concern in these zones than others. While shortage of water, especially during dry years, is a serious problem in Kohdaman area, the area of Panjwaie is suffering from surplus of ground water and poor drainage.

III. Yield and Production of Grapes

A. The State of Data and Information

35. Up to this date, the grape growing areas of Afghanistan have not been completely surveyed and no attempts are underway to do so in the near future. Therefore, all the available data and information with respect to grape yield and production reported by various national international observers and specialists are totally in the form of estimates. The area which has been most studied by the Specialists of PACCA (Program for Agricultural Cooperatives and Credit in Afghanistan) project is that of Kohdaman/Parwan. Even in this area, the purpose has been to concentrate on the activities of the project in specific and small sections rather than spreading over to the whole area and collect data and information regarding grape situations.

36. Conducting interviews with farmers or disseminating questionnaire forms will not fully solve the question because most farmers, including vine farmers in Afghanistan are not measurement-minded and are not accustomed to keep record of past yields, production, and revenues.

The answer to having a reliable annual estimation on total grape production in the country would probably be to have a well-planned crop reporting service throughout grape-growing areas by conducting on-the-spot crop survey undertaken by experienced and informed personnel.

37. The most outstanding fact that one can easily discover when dealing with grapes and grape situations in Afghanistan is the element of variability in yield and production of grapes from year to year, region to region, and even from section to section in the same region. There are several reasons for these variations, but the most important ones are:

(a) Readily changing weather conditions by affecting water supply for irrigation, and incidence and intensity of frost, diseases, and hail storms, are responsible for annual variations of grape situations.

(b) Increasing number of newly-established vines entering producing age, together with the gradually increasing rate of adopting modern viticultural practices undoubtedly result in progressively increased annual production.

(c) Differences in growing conditions, varietal distribution, viticultural systems and production incentives such as market opportunities have, in varying degree, brought about regional and sectional variations in grape yield and production.

B. Yield of Grapes

38. Yield of grapes is customarily expressed in terms of seers per vine (1 seer = 7.066 kg) or kherwar per vineyard (1 kherwar = 80 seers) throughout the eastern zone and mons per vine or mons per joya (1 mon = 10 lbs) in southwestern zone. Whatever the unit of measurement, vine rather than jerib (1 jerib = 1936 m²) or hectare, seems to be the base for yield estimate of grapes by farmers in Afghanistan. The reason for not using area as a base for yield estimate is probably due to the fact that areas in different localities of the country or even various vineyards located in the same region carry different number of vines on them.

39. There are numerous factors and conditions that influence the yield of grapes. The most important among them are: (a) variety, (b) regional and local climatic and soil conditions, (c) planting system, (d) cultural practices, and (e) the extent to which modern viticultural practices are adopted. Yield per

vine varies from a few bunches to an optimistically reported high level of 30-50 seers depending how the above-mentioned factors and conditions have collectively enacted. Generally speaking, the poorer the quality of grape, the higher is its yield, and vice versa. Following is a broad estimate of average and good level of grape yields reported to the writer by farmers while traveling in the grape growing areas of the country:

Place	No. of vines per ha. (Average)	Av. Yield		Good Yield	
		Per vine	Per ha.	Per vine	Per ha.
Kandahar	1380	10 kg	14 MT	20 Kg	28 MT
Kohdaman	1500	7	10.5 MT	14 "	21 MT
Parwan	1500	7	10.5 MT	14 "	21 MT
Sangcharak	1000-1380	10-14	10-19	20	20-28
Faryab	950	20	19 MT	35	33 MT
Balkh	"	"	"	"	"

The highest yields per vine of 35 kg, 40 kg, and 210 kg have been reported respectively for Kohdaman, Kandahar, and northern areas of the country.

40. During the course of the past decade, a number of national and foreign experts associated with various aspects of Afghan grape industry have made yield estimates of grapes on a per hectare basis.

GrnCarevic (4) in his report, Recommendations for Improved Handling of Grapes and Raisins in the Kohdaman Valley of Afghanistan, FAO, Rome, 1968, has summarized the estimates of various experts on average grape yield as follows:

<u>Expert</u>	<u>Year of Estimate</u>	<u>Yield per ha. (in metric tons)</u>	<u>Area in mind</u>
1. Pastidis (5) ^{1/}	1959-62	12 MT	National average
2. Dawlaty (5)	1967	9.3 MT	Kohdaman area
3. Varghes (5)	-	10.5 MT	Kohdaman area
4. GrnCarevic	1968	7-9 MT	Kohdaman area

The figures expressed above indicate the average yield for the areas concerned covering all vines without differentiation between bearing and nonbearing ones. GrnCarevic further reports that the grape yield in Australia is about 15-16 MT per hectare, which is second only to California. And this level has been reached after many years of improvements. In a recent report by PACCA, the average national yield estimate of grapes has been placed at about 5 MT per ha.

41. An analytical study of all yield estimates indicated above in addition to supporting the purpose of paragraph 37, brings forth the following important points:

i. Grape yield is different in different viticultural regions (zones) and there are further variations within each region.

ii. There is a marked margin between the yields of vineyards having young vines managed under improved viticultural practices and old traditionally-managed vineyards, which is strongly indicative of a great potential for increasing national grape yield.

iii. Different experts have expressed different figures on yield estimates even for the same area of the country. This clearly calls for the need of a systematic, on-the-spot yield survey and well-planned annual crop reporting service.

C. Total Production

42. Like its yield, the total production of grapes has also been a matter of some educated estimates by many experts during the past 10 years.

^{1/} The number in parenthesis indicates the reference number.

GrnCarevic (4) has estimated annual production at about 200,000 MT and Petterson in his report, The Improvement and Development of Marketing of Table Grapes and Raisins in Afghanistan, Rome, 1972, has put his estimate in the range of 190,000-220,000 MT. Jelaska has expressed a figure of 340,000-380,000 while a recent report (prepared as a project document in early 1974) by PACCA has reported the annual total grape production in the range of 200,000-over 300,000 MT.

43. There are at least two ways of estimating total annual grape production in Afghanistan. One way is to use the estimates on the number of vines and average yield per vine and come up with an estimate on total production. The drawbacks of this method are: (a) total number of vines include millions of young bearing and nonbearing vines whose respective population has not been properly estimated; (b) yield of grapes being under the influence of so many changing factors and conditions, requires that, in order to arrive at an estimate on total production, a complicated and lengthy procedure be followed; and (c) in the absence of a complete and regular survey it is difficult to arrive at an acceptable estimate on the total number of vines.

44. A more simple method of estimating total production is to use the figures of fresh grapes and raisin exports, estimates on the percentage of total average annual domestic consumption of fresh grapes and raisins, and an average grape/raisin conversion ratio of 4:1, and then calculate the total grape production in the country. From the reports of GrnCarevic, Petersen, and others prepared by PACCA experts on grapes and raisins in Afghanistan, the following points are underlined:

- About 70% of total grape production is processed into raisins
- About 30% of total grape production is used in fresh form
- About 57% of total grape production is exported
- About 43% of total grape production is consumed domestically

45. Knowing that export of grapes and raisins has substantially increased in recent years, to calculate the total annual production of grapes from the available export data, the following assumptions are made:

- An average of about 70% of the total grape production is exported and the remaining 30 percent is consumed domestically

- Average grape/raisin conversion ratio 4:1

- Percent of grapes processed into raisins 75%

Based on the assumptions indicated above, the estimates on total annual production is shown in Table 6.

Table 6. Calculating Annual Total Grape Production in Afghanistan
(In rounded figures)

Year	Raisin ^{1/} Export MT	Fresh grape ^{2/} Export MT	Total export in fresh grape form MT	Domestic cons. in fresh grape form (MT)	Total fresh grape prod. MT
1345	30500	43300	165300	55100	220400
1346	33200	42000	174800	58300	233100
1347	17800	41300	112500	37500	150000
1348	23900	44300	140400	46600	187000
1349	30600	46300	167700	56233	224933
1350	26600	53600	160600	53300	213300
1351	35200	36900	177700	55900	223600
1352	38600	33000	187400	62470	249870

^{1/} & ^{2/} Data obtained from Ministry of Commerce Export of Merchandise publications.

46. A look at both estimated and calculated annual productions of grapes clearly indicates that while many fluctuations are noticeable, total production has increased drastically. Comparing the calculated production of 1345 with that of 1352, shows that within a period of eight years the production has increased from 220,400 to 249,800 MT or 14 percent. There are many reasons for this increase, but the most important of them are, (a) expansion in vineyard area, and (b) the gradual adoption of improved viticultural practices, both of which have been the result of better price incentives for raisins and grapes in recent years.

47. The seedless Kishmish grapes (the same as Thompson's seedless of California and Sultania of Australia) comprising of common Kishmishi Shindo Khani, Black Kishmishi and Red Kishmishi, make up from 80-90 percent of the total production. Next to Kishmishi, the varieties Hussaini, Aita, Black Kandahari, Katta, Kohdaman Kandahari, Gholadan, Taifi, and Shore Tak are the main contributors to total grape production in the country.

Based on export data of 1350 differentiated by main custom houses, and using the assumptions pointed out in paragraph 56, the zonal distribution of grape production in the country is calculated as follows:

i. Eastern zone (mainly Kohdaman/Parwan valleys)	112300 MT
ii. Southwestern zone (mainly Kandahar)	20520 MT
iii. Northern zone	27000 MT
iv. Total	159820 MT

D. World Production Situation

48. World annual grape production for 1970-72 period has averaged at 53.650 million MT, which is about 19 million MT or 56 percent more than what it had annually averaged during 1948-52 period. Five countries, namely, Italy, France, USSR, Spain, and Turkey have produced over 52 percent of world production. Some 23 nations produce grapes in excess of 50,000 MT each, but only 14 produce more than one million tons each every year. Italy, France, and Spain, the three nations that produce over 45 percent of the world's grapes, use the bulk of their production for making wines.

As shown in Table 7, during a period of 25 years (1948-1972) USSR has increased her grape production more than 5.7 times and Turkey by about 2.5 times.

Table 7. Grape Production - World Total and by Major Producing Country

	(1000 MT)		
	<u>1948-52</u>	<u>1959-61</u>	<u>1970-72</u>
World	34400	43600	53650
Italy	7074	9105	10040
France	7995	8799	9927
USSR	753	1943	4326
Spain	2540	3147	4063
Turkey	1500	3063	3700
USA	2701	2790	2928
Argentina	1657	2101	2642
Greece	1124	1027	1631
Algeria	1738	2145	1100
Portugal	1113	1287	1302
Yugoslavia	867	883	1112
Romania	623	866	957
FRG	324	654	997
Bulgeria	504	618	1011
Hungary	546	546	746

Source: From or computed from Production Year Book, Food and Agriculture Organization of the United Nations, Rome, Italy, volume 16, 1962 (pp. 102-103) and volume 26, 1972 (p.147). The figures are the annual averages for the respective periods.

IV. Utilization of Grapes

A. Utilization Pattern

49. Afghanistan's annual grape production is primarily used as table grapes and for making various colors, sizes, and qualities of raisins.

A nominal amount of the total production is used for making home-made vinegar, concentrated grape juice, a sour spice locally called "ghora" (prepared by drying and powdering unripe grape berries), and manufacture of alcoholic beverages by an Italian enterprise at Pulecharkhi industrial complex.

50. Estimates on how much of the total production is utilized as table grapes and raisin-making vary from source to source and from year to year.

GrnCarevic (4) has estimated that of the total annual production of grapes, about 70 percent is processed into raisins and the remaining 30 percent is used as table grapes and other minor purposes. Of the total production of raisins about 60 percent is exported and 40 percent used from home consumption and domestic markets. Likewise about one half of the quantity used as table grapes is exported annually. Based on above-mentioned estimates:

- About 42 percent of the total annual grape production is exported in the form of raisins.
- About 28 percent of the total annual production of grapes is used domestically in the form of raisins.
- About 15 percent of the total annual grape production is exported as table grapes and the remaining 15 percent of table grapes is used domestically for fresh consumption and other minor purposes.
- About 57 percent of the total annual grape production is exported and 43 percent is utilized domestically.

51. Peterson (3) reports that about 82.5 percent of the annual grape crop is exported as raisins and table grapes, with raisins alone accounting for 60 percent of the total. The share of the domestic markets, as well as grapes and raisins consumed by the farmers and their families, is thus about 17.5 percent. The share of domestic markets has been reported about 7.5 percent in the form

of raisins and 2.5 percent as table grapes). Thus, the amount of the total production left for home consumption is about 10 percent.

Some recent reports prepared by specialists from PACCA project, have estimated that from 2/3 to 3/4 of the total annual grape crop is converted into raisins and the remaining portion is utilized in fresh form.

52. Comparing the estimates already mentioned and analyzing the nature of grape production of marketing in Afghanistan, one can safely conclude that the percentages of table grapes and the quantity of grapes converted to raisins will seldom indicate a stable relationship. Instead the relationship will often be of a varying magnitude depending upon the relative prices of fresh grapes and raisins and the volume of total production of grapes in the country. Neither of these two factors is stable and so the raisin/table grape percentages will not be stable with respect to total annual production. It is understood that in view of attractive export prices for fresh grapes and raisins, the share of their domestic consumption will decrease.

Experiences have also shown that higher raisin prices have resulted in increased prices for table grapes. Situations in 1973 and 1974 when raisin prices, particularly in 1973, speedily increased, very well support the two statements made above.

53. Based on the estimates and analysis already made, considering normal production and marketing conditions, and accounting for the recent increase in the volume of exports, especially of raisins, it is concluded that:

- 70 percent of total grape production is exported
- 30 percent of total grape production is used for domestic consumption
- 75 percent of total grape production is used in making raisins
- 25 percent of total grape production is used as table grapes, etc.
export

For 1352 (1973/74) harvest year, when raisin prices escalated abnormally, the bulk of the raisins and table grape crop, exceeding the average level of 70 percent, was probably exported.

54. Domestic utilization of fresh grapes and raisins is of two types: (a) home consumption and (b) consumption in the main and local markets. While consumption in the markets by those who are not grape farmers very much depends on their purchasing power, families of grape farmers use grapes and raisins as a part of their diet. In view of fluctuating prices and in the absence of reliable statistics in this regard, it is difficult to estimate the per capita domestic consumption of raisins and table grapes. Nevertheless, Marcel Jelaska, an expert of PACCA, in one of his reports which is not published yet, has made the following estimates on annual per capita consumption:

<u>Assumed Population</u>	<u>Per Capita Consumption</u>	
	<u>Table Grapes</u>	<u>Raisins</u>
15 million (excluding nomads)	5.2 kg	2.6 kg
18 million	4.3 kg	2.2 kg

B. Afghan Raisin Industry

55. Raisin making has been one of the old food preserving arts of the past, but has become an important commercial activity of the present generation of the people of Afghanistan. Under Afghanistan's social and educational situations, raisin production continues to be, for some time yet, the largest marketing outlet of the total annual grape crop. Thus, the development of grape production and thereby increasing the level of grape farming income very much depends on how well and rapidly the development of raisin industry proceeds.

56. Fortunately, Afghanistan possesses many ideal conditions, has obvious and solid needs supported by strong economic reasons, and can fulfill the requirements for developing a profitable and prosperous raisin industry in the country.

Under this section of the report, a brief description of the opportunities mentioned above will be made. In addition, a discussion of various aspects of the present situation of raisin making and processing will also be presented.

1. Ideal Conditions

57. Climate is the most important of the conditions required for raisin making. The long, warm, dry summers and rainless fall is, dependably uniform throughout the grape growing areas of Afghanistan, are considered

optimum for raisin making. Low humidity, so important to uniform, rapid rais drying, is always favorable. These dry conditions eliminate the need of costly storage structures to keep raisins protected until marketed.

58. The principal grape variety of the Republic of Afghanistan is Kishmishi which is a seedless grape having the widest adaptability and produces raisins of various colors, sizes and tastes. Raisins from Kishmishi grapes are much similar to Thompson's Seedless of California and Sultania of Australia and Turkey, which are the best raisins of the world. While Afghanistan's red, natural seedless raisins can compete with red Thompsons and Sultania, the Afghan green raisin has a unique position in the world raisin market. Afghanistan produces at least three colors (red, green, black) and three sizes (medium oval, large oval, long) of Kishmishi raisins. Besides Kishmishi, there are other varieties of seeded grapes that produce raisins of various colors, sizes, and tastes -- for all of which foreign demand is available.

2. Needs and Economic Justifications

59. Of the various known utilization areas of grapes, Afghanistan is restricted to the two principal ones -- table grapes and raisins. Only a relative small portion (average of about 25 percent) of the total grape crop is utilized by export and domestic consumption in fresh (table grape) form. Due to the nature of most of Afghan grapes, landlocked situation of the country, poor road and transportation facilities, lack of cold storage and conditions in the principal foreign markets for Afghan fresh grapes, it seems that the percentage of the utilization of grapes in table grape form will not change very noticeably, at least in the near future.

Therefore to profitably utilize the bulk of the annual grape crop and be prepared to make use of the great potential which the country happily enjoys for increasing the yield and developing the production of raisin-producing grapes, especially Kishmishi, Afghanistan very obviously needs to develop her raisin industry.

60. Grape farming in Afghanistan is concentrated in areas where farm-to-market roads are either nonexistent or the very few ^{not} existing ones are underdeveloped and thus most of the transport is done by animals and human labor. In areas such as Sangcharak and Faryab province, the long and rough distances that farm produce has to be moved adds to the general road and transportation problems. This calls for bringing farm products to the markets in their most

concentrated form. In the case of raisin-producing grapes, the most practical and profitable form is raisin. With modern storage facilities, on a commercial scale, practically nonexisting, highly-perishable products such as grapes, must be processed to be able to store over extended period of time. Here again, raisins are the ideal product.

61. In recent years the major grape-growing countries have shifted their emphasis toward wine-making, and a rapid shortage of raisins in the world market has developed. Competition for the raisin market will be sharply reduced providing opportunities for higher prices and expansion of raisin industry for nations like Afghanistan that puts the bulk of her grape crop into raisin production. For Afghanistan that borders with some of the world's large raisin markets and has traditional and long-standing trade relationships with others, it is a reasonable and a highly profitable policy to develop her raisin industry.

62. The entire raisin-making process requires no machinery or heavy equipment, both of which are scarce in Afghanistan. On the other hand, raisin-making requires the employment of a substantial amount of unskilled hand labor which is quite abundant and inexpensive. The fact that raisin-making requires very low capital investment and provides employment opportunities for unskilled labor is of obvious economic importance for developing Afghanistan.

3. Fulfill the Requirements

63. Aside from climatic conditions, the next most important requirement for developing a profitable raisin industry in Afghanistan is commercially adequate production of grapes capable of producing the proper quality of raisins. Afghanistan's present grape production is not only commercially large enough, but has the potential of substantial increase and development in the future. The quality of raisins is determined largely by size, color, uniformity, skin texture, moisture content, chemical composition, and physical condition. Afghan raisin-making grapes, primarily Kishmishi grapes, possess all of these required qualities in their excellence. Afghan Kishmishi types have a highly favorable grape-to-raisin ratio ranging from four to one (4:1) with a 13.3 percent moisture content (in the first part of harvest season) to 3:1 (in the later part of the grape season). While the conversion ratio for California averages 4.86:1 for a 15 percent moisture content.

4. Raisin Making

64. As already stated, an average of about 75 percent of the total annual grape crop is processed into raisins, with Kishmishi grapes accounting for over 90 percent of the total. Other grapes that produce various colors and sizes of

seeded raisins are Aita, producing the large greenish-yellow raisin locally called Objosh; Gholadan, producing a large red raisin; Toran (Black Kandahari), producing a medium-size black raisin, and Munoga, which produces a long, large-size, red color raisin.

65. The most important raisin producing areas of Afghanistan are: (a) Kobdaman Parwan, Ghazni; (b) Kandahar, Zabul; and (c) Sangcharak (in Jozjan province), and Qa isar, Shireen Tagab, Maimani (in Faryab province). An estimate of the 1950 raisin production of each of the three main areas is:

<u>Area</u>	<u>Estimated production</u>	<u>Percent of total</u>
a	13,070 MT	50
b	3,810 MT	14
c	9,680 MT	36
Total	26,560 MT	100

66. Kandahar's raisin production is dominated by green seedless raisins composed of two sizes, common or locally called Gerdak (means round), and the longer Shindokhani type. The bulk of the green raisin is of common type with Shindokhani (a better quality raisin usually sold at a price about 50 percent higher) making about 20 percent of the total volume. The share of Shindokhani green raisin is rapidly increasing in recent years. Green raisins are produced by shade-drying of Gerdak and Shindokhani Kishmishi grapes inside of 30 x 4 x 5 meter, adequately ventilated building called Kishmish Khana, specially constructed from mud for this purpose inside each vineyard in Kandahar. The grape berries left over at the time of putting bunches on the racks inside the Kishmish Khana is the only Kishmishi grape which is sun-dried and is given the name "Artavi". The total volume of this raisin which is obviously of lower quality is presently about 2000 MT.

67. Other raisins that are specific for Kandahar area are Objosh, prepared by treating and boiling Aita grapes, and Black Kandahari. It is clearly understood that Kandahar's intense summer/fall heat is more favorable for shade-drying and thus^{for} producing green raisins than red ones. The writer was told in Kandahar that sun-drying of Kishmishi grapes under Kandahar's late summer/early fall temperature condition will produce a dark-red raisin which is not the most desired color in the world market.

68. Kohdaman, Parwan, and Ghorzai primarily produce red raisins, the production of green raisins is of secondary importance. Climatic conditions in this part of the country, especially Kohdaman and Parwan, are ideal for the production of the best natural red seedless raisins of desired color to the world market. Other raisins produced in Kohdaman, Parwan valleys are of seeded types. They are large red Gholadan and long red Munuqa.

Sangcharak is restricted to the production of red Kishmishi raisins, Qaisar is known for its fleshy, relatively large-size black Kishmishi, while Shireen Tagab and Maimana are predominantly red Kishmishi producing areas of the country.

69. Red raisins are obtained by spreading grape bunches evenly on the bare ground which is already smoothed or mud-plastered. The ground used for this purpose is selected so that it is well protected and receives ample sunshine. Drying takes from four to six weeks, depending upon the season, month, and date at which drying has begun. Late season raisin drying in the open is sometimes subjected to rains. Speeding the drying period and producing golden red raisins by chemical treatment is still in the experimental stage in Afghanistan.

5. Raisin Cleaning, Grading, and Packing

70. The need for modern cleaning and packing of raisins was more seriously felt when the commercial production of raisins in the country was increased way beyond the level that can be profitably absorbed by the two traditional export markets of India and Pakistan, and domestic markets. Historically, Afghan raisins are exported to Indian and Pakistani markets in their natural, hand-cleaned condition, packed in jute sacks, which is the preferred form to which the consumers in those countries are traditionally accustomed. The Soviet Union has also occasionally purchased hand-cleaned Afghan raisins packed in jute bags. In recent years, the country's raisin production has increased substantially and only part of the total production can be sold in Indian, Pakistani, and domestic markets. This necessitated that the remaining production be exported to other countries where factory-cleaned raisins, graded, and packed in cartons are demanded.

71. There are as many as 10 raisins cleaning plants already established and two others are planned. Of all the factories, six are in Kabul, and two each in Charikar, Kandahar, and Mazar-i-Sharif. The plants have a total approved annual cleaning capacity of about 27,000 MT when employing one shift.

72. The Ministry of Commerce has designed the following four size classes for Afghan Sultana raisins:

- a. Large - Raisin size ranging from 8-12 mm, 90 percent of the weight of the raisins to pass through a 12 mm riddle, but not more than 5 percent of the weight to pass through an 8 mm riddle.
- b. Mixed - Raisin size ranging from 3-12 mm (a mixture of large and small sizes)
- c. Small (midget) - Raisin size ranging from 3-8 mm.
- d. Extra Large - Raisin size is larger than 12 mm, only 5 percent of the weight to pass through a 12 mm riddle.

Likewise, there are three grades, each for red Sultana and green (or golden) Sultana. These grades are:

For red Sultana:

- High quality or Afghan Red #1
- Medium quality or Afghan Red #2
- Standard quality or Afghan Red #3

For green Sultana:

- High quality or Afghan Green #4
- Medium Quality or Afghan Green #5
- Standard quality or Afghan Green #6

The accepted (no deductible) moisture content for all grades is 13-13.9 percent.

73. Quality of raisins also depends on yield, stage of maturity of grapes and methods of drying. Since about 75 percent of the total annual raisin production is exported to highly competitive world markets and this percentage is expected to be even greater in the future, Afghanistan has to take effective measures to improve grape yield, pick grapes for drying based on grape maturity and sufficient drying period, and to introduce drying methods other than on the ground, such as using low-cost, locally-made mats, for drying red raisins.

C. World Utilization Situation of Grapes

74. While grape-producing countries are numerous in the world, the countries that have the proper quality and adequate quantities of grapes and possess suitable climatic and economic conditions for large-scale raisin making, are few. The bulk of total world production of grapes goes for wine-making. The following tabulation shows how grapes are utilized in the world:

Percent of World's Grape Production Used to Make:

	<u>Wine</u>	<u>Raisins</u>	<u>Other</u>
1948-52	81	7	12
1959-60	77	7	16
1970-72	77	6	16

Source: From or computed from Production Year Book, Food and Agriculture Organization of the United Nations, Rome, Italy, Volume 16, 1962, and Volume 16, 1972.

75. The major raisin producing countries of the world are the U.S.A., Turkey, Australia, Greece, Iran, Afghanistan, S. Africa, Spain, Argentina, and Chile. Over the period of the last nine years (1965-1973), these countries' total commercial production has fluctuated from the lowest levels of 480.9 thousand short tons in 1972, to the highest of 684.9 thousand short tons (S. T.) in 1965, averaging about 580 thousand S. T. per year. There are many other countries that produce varying quantities of raisins. But most of them produce just enough to be sufficient for their own domestic consumption. In normal years total world production of raisins, counting both commercial and noncommercial ones, is estimated at about 900000 MT per year.

76. Based on 1973 estimates, Afghanistan, with an estimated annual product of about 60,000 MT, was the fourth raisin-producing country of the world. Due to unfavorable weather conditions, Australia's Sultana production totaled only 49,000 tons, 52 percent below the 1972 crop of about 102,400 tons. Raisin crops in both Turkey and Greece was reported 20 percent and 23 percent smaller respectively compared to 1972 season. The U.S. has increased its production of seedless raisins from 105,000 tons in 1972 to 215,000 tons in 1973 or 104 percent. For details see (Appendix 11).

V. Marketing of Grapes and Raisins

A. General Information

1. Importance

Grape farming in Afghanistan is a specialized and intergration-intensive enterprise. Of the total annual production of grape normally around 90% is marketed. Foreign markets absorb about 83% and domestic markets the remaining 7%. In the last 3 years that foreign prices for raisins and fresh grapes have risen attractively, the share of foreign markets has exceeded the 83% level at the expense of the share of both domestic markets and home consumption.

The importance of grapes as a cash crop ranges from "sole" to "major" depending on various producing areas. It is a sole cash crop in areas such as Kohdaman, Panjwayee, Saugcharak, Bagram and Peroze Nakhcheer.

In the rest of the grape growing areas it becomes one of the major cash crops, competing with vegetables, fruit trees (including pomegranates in Dand and Arghandab areas of Kandahar), and cotton in some of the cotton producing areas in the north.

2. Season

Grapes begin to ripen and appear in the domestic markets, sometime during the first half of May. The earliest maturing grape varieties of Afghanistan are Khalcheeni and Raucha of Kandahar, while the variety Katta of Shakardarah area of Kohdaman is the country's latest maturing commercial grape, which ripens during late October and is seen in the local markets as late as April. Thus the fresh grape marketing season in Afghanistan is about 9-10 months long.

The earliest maturing variety of Kohdaman is local Kandahari which ripens sometime in early July and competes in Kabul and other local markets with Kandahari black (Toran) grape. The grape that matures the earliest in the northern areas is called Aqeli.

In general grapes of Kandahar and other southwestern areas of the country are matured, marketed, and utilized earlier, and are sweeter, yellower and larger in size, than those in other parts.

The marketing of Kishmishi grapes begins in late August and lasts for about four months. The grapes that have the longest keeping ability are Katta, Taifi, Aita, Hussaini and Soybi.

Raisins are also made and ready to be marketed the earliest in Kandahar, beginning with drying black grapes. Kishmishi raisins, both green and red, are dried by October or the latest by November and become ready for marketing.

The timing of harvesting kishmishi grapes for raisin making is not as much influenced by the best stage of maturity, based on the proper sugar content, as it is by (a) sale opportunity of fresh grapes, (b) the needs of the farmers for cash, (c) raisin prices of the previous harvest, and (d) local climatic conditions. Small farmers, for meeting their immediate needs, i. e. , purchasing food stuff especially wheat and flour, clothing, etc. in the fall when the price of these commodities are usually lower prefer to sell their grapes in fresh form. When disappointed from this opportunity, it is then that they decide to pick grapes for raisin making.

3. Marketing Procedure

Traditionally, the market for grapes and raisins is a buyer's market. Vinefarmers, especially the small ones that are very poorly informed about prices, not organized, and desperately in need of money, are in the mercy of buyers who are merchants or middlemen and are more informed about prices and market situations abroad and inside the country and hence strive to allow as greater profit margin for themselves as possible.

In recent years PACCA has been acting as the agent for the members of its cooperatives and has marketed their grapes and raisins in the foreign markets resulting in higher returns to the member farmers. Likewise some farmers who have a sizable grape production of their own have been directly marketing their fresh grapes in the foreign markets, gaining a relatively higher return.

The merchants or middlemen purchase the crop either on a per Kharwar weight basis or contract the whole crop of the vineyard based on an estimate agreed by both sides. The latter procedure is locally called Ejara and is more prevalent in Kandahar area. The money in both cases, is usually paid in installments. Delays in payments or even non-paying incidents are common stories.

The buyers provide for all packing materials such as light weight boxes made from poplar wood, nails, packing paper, marking paint etc. Harvesting crews, cleaners and packers are also provided by the buyers. Packing of grapes requires skilled laborers. The best bunches of grapes are usually placed in the top layer in the packing box. Marketing experts have called the present packing of grapes for export satisfactorily.

Raisins, on the other hand, are bought in the villages, in unclean form. The farmers get the value of their raisins in cash according to a price agreed upon. Varying number of small and poor farmers, depending upon the area concerned, are paid for their raisins a few months in advance by local money lenders. The price, which is also fixed at the time of payment, is usually low compared to the expected value of raisin in the upcoming season. There are two main reasons for such transaction, (a) farmers are in need of money and there is no other source that they can easily borrow it from and (b) they are inclined to such high interest deal in return for a secured commitment that their raisin will be sold. This practice is more common in areas such as Sangcharak and Faryab province and other areas of the country where accessibility to large marketing centers is poor and farmers are poorly informed and grape farming is the only source of cash income.

4. Market Information and Organization

Market information service to regularly inform farmers about current prices and market conditions, especially in the foreign markets, and future trends is practically non-existing in the country. Farmers' strongest indicator for decision making to invest in grape production is the level of price paid to them in the immediate-past season.

On the other hand, the exporters are more informed and have continuous contact with foreign markets. Thus there is a big information gap between producers and exporters. The situation being in favor of exporters, the latter not only make big profit, but in addition, have the market in their hands and the farmers under their influence.

Presently, grape farmers in Afghanistan do not have a strong and influential organization through which their grapes and raisins can be marketed. Likewise, there is no specific organization in the country to supervise and coordinate the export of raisins and grapes to the foreign markets. Consequently not only farmers are left disorganized and have a poor bargaining power against buyers, but exporters of raisins and grapes, as well, are confronted with problems against exporters of other countries.

Raisins are stored in bulk in buildings not actually built for storage purposes. To avoid balling, sticking and sugaring of raisins, care is taken to make raisins that are extra dry and to collect them with more dust which is desirable by buyers. Obviously under such storage conditions raisins are subjected to further drying, and other losses caused by rodents etc., resulting in a high percentage loss when factory-cleaned.

B. Domestic Markets and Prices

1. Main Markets

Kabul, the capital city and situated in the largest grape producing zone of the country, is by far the biggest and most important domestic market for fresh grapes and raisins. The second largest market is Kandahar followed by Mazar-i-Sharif, Charikar, Pulikhumri, and Herat.

The market places mentioned above correspond with the nearest, largest cities to the grape and raisin producing areas. Herat is the only one in the group that receives its share of raisins from Kandahar, as Herat province and its neighboring provinces do not produce raisins on large scale.

There are many secondary markets handling grapes and raisins in varying volumes depending on how far and how accessible their location is from the main production areas.

In each of the main markets, there are specific areas set aside for wholeselling grapes and raisins. Retail selling of these commodities take place in the shops, either located in concentration in a place locally called Mandawi or situated irregularly in different sections of the market place (city). Grapes are brought to the markets by farmers or local dealers in locally-made containers made from tree branches or used large cardboard boxes containing about 35 kg (5 seers) of grapes each.

2. Prices

Domestic prices of fresh grapes and raisins normally depend on supply and demand conditions in the markets. With the establishment and operation of modern raisin cleaning and packing plants in the country, enabling Afghan raisins to better compete in the world market, raisin and grape prices have strongly come under the influence of world prices.

The prices of grapes in particular are affected by prices and marketing conditions in India and Pakistan, the two traditionally major foreign markets for Afghan grapes. Other conditions being unchanged, prices are substantially influenced by the total production of grapes in the country.

Undoubtedly, the best quality grapes have the highest prices in the market. However, these grapes because of their delicate condition, are confined to local markets. Besides these grapes -- namely Lal, Soyebi, Khalili, Fakhri and others (Herat and Kandahar have a reputation for such grapes) -- are not suitable for making raisins. Among the commercially important grapes, Shindikhani (a seedless long white colored kishmishi grape) is marketed at higher prices. This grape is a specialty of Kandahar area. Since both raisins and fresh grapes of this selection bring higher prices in domestic and foreign markets as well, its area and production is rapidly expanding in Kandahar, and is being introduced in Kohdaman, Parwan and even in the northern areas of the country. Farmers and merchants interviewed in Kandahar indicated that shindikhani fresh grapes are sold at a price 35-40 percent higher, and its raisin brings about 50 percent more per unit weight compared to the common kishmishi raisin.

Green seedless raisins are better accepted by Afghans and are willing to pay higher prices ^{for} them. Therefore green seedless raisins, especially shindikhani type, are the highest priced raisins in the country. Shindikhani grapes are processed into green raisins only.

Besides Kandahar, green raisins are produced in Kohdaman/Parwan valley and Faryab province in the north.

Black seedless raisins (a specialty of Faryab and on a smaller scale, the Sangcharak area) are slightly higher priced than red seedless raisins, the latter being the most common raisins in the country, and is thus ranked third in price. The rest of the Afghan raisins such as Objosh (large yellow green), Manuqa, Gholadan and Black Kandahari, are ranked 4th, 5th, 6th, and 7th in price respectively.

As in the case of other commodities, there are three price levels for grapes and raisins in Afghanistan. These levels are farm, wholesale and retail prices. The farm price of fresh grapes is lowest at the start of the season and escalating toward the middle and end of the grape season. The difference, in the case of Kohdaman/Parwan valley in some years, is more than 100 percent.

Prices in 1973 season hit the highest level ever recorded. Farm price for kishmishi grapes ran as high as 112.5 afs per seer (9000 afs per kharwar)

Product	Prices in Afs per Seer												
	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352
Fresh Grapes	20	24	30	40	30	47	31	24	97	76	101	97	109
Green Raisins	80	90	92	160	188	162	160	160	150	189	226	214	262
Red Raisins	57	62	75	128	116	128	128	128	115	127	139	156	231

Source: Research Department, Da Afghanistan Bank.

While fresh grapes prices have fluctuated widely over the last 12 years, the price trend is clearly upward, moving from the lowest level of 20 afs per seer to the highest of 109 afs per seer. Red raisins in 1352 have grown 3.3 times and 4 times respectively in comparison to their prices in 1340.

C. Exporting Grapes and Raisins

1. Export Markets

Afghanistan exports various kinds and quality of grapes and raisins to many countries. The kinds of fresh grapes exported are common kishmishi, shindokhani, hussaini, kandahari and gholadan. Fresh grapes are traditionally exported to Pakistan and India. Occasionally some quantities of grapes are sent to USSR. In the current season Iran has been newly added to the export markets for Afghan fresh grapes, and Herat area, for the first time, can join other grape producing areas of the country to supply this new quantity which has been set aside at 2000 MT for the current season.

Shindokhani fresh grapes has lately gained good reputation as an export grape due to its better keeping, size, color and taste. Hence merchants prefer to export as much shindokhani as they can possibly purchase in Kandahar. The writer was told in Kandahar by a prominent grape exporter that common kishmishi fresh grape is exported from Kandahar after the supply of shindokhani grape is exhausted in the area.

Afghanistan exports many qualities, colors and sizes of raisins to about 18 countries. These kinds of raisins are:

- i- Red natural seedless common kishmishi
- ii- Green natural seedless common kishmishi
- iii- Long green natural seedless shindokhani
- iv- Black natural seedless kishmishi
- v- Large greenish yellow seeded objosh
- vi- Large red seeded gholadan
- vii- Long red seeded munoga
- viii- Black seeded kandahari

The main markets for Afghan raisins are USSR, India, Pakistan, China United Kingdom, Federal Republic of Germany and Holland. Based on 1352 export data the share of various main foreign markets for Afghan raisins has been as follows:

USSR	16.80	thousand	MT
India	7.41	"	"
Pakistan	3.09	"	"
China	4.23	"	"
United Kingdom	2.57	"	"
Other Countries	4.71	"	"
<hr/>			
TOTAL	38.81	"	"

2. Volume of Export

During the past 15 years the volume of export of both fresh grapes and raisins have fluctuated from year to year quite irregularly. The export of fresh grapes has varied from the lowest of 7.4 thousand MT in 1340 (1961) to the highest of 53.6 thousand MT in 1350 (1971), averaging 31.4 thousand MT annually. Likewise annual raisins exports have fluctuated from the lowest of 14.3 thousand MT in 1339 (1960) to the largest of 38.8 thousand MT in 1352, averaging 25.2 thousand MT annually for the whole 15 year period.

Table 8 Annual Volume of Grape & Raisin Exports of Afghanistan
(in 1000 MT)

<u>Year</u>	<u>Fresh Grapes</u>	<u>Raisins</u>
1338 (1959)	17.9	22.7
1339	23.6	14.3
1340	10.9	18.9
1341	7.4	24.9
1342	14.9	19.6
1343	26.3	20.0
1344	29.0	21.2
1345	43.3	30.5
1346	42.0	33.2
1347	41.3	17.8
1348	44.8	23.9
1349	46.3	30.6
1350	53.6	26.6
1351	36.9	35.2
1352 (1973)	<u>33.0</u>	<u>38.8</u>
TOTAL	471.2	378.0
AVERAGE	31.4	25.2

Source: Export of Merchandise, Ministry of Commerce, Kabul.

If the average of the first three years is considered as a base, then the base export for the period (1338-1340) for fresh grapes and raisins would be 17.47 and 18.63 thousand MT respectively.

On the average as indicated on Appendix 8, the quantity of grapes annually exported in the form of raisins is about 3.2 times greater compared to fresh grapes export. But for 1352 when raisins prices hit the highest level of the past decade and a half, this figure was raised to 4.7 times.

The annual export of raisins by variety and kind, by main customhouses, and by country of destination is presented in Appendices 12, 8, and 10 respectively.

An examination of these tables reveal the following important information:

i- Kishmishi grapes has made up an average of over 90% of the total fresh grape exports followed by Kandahari and hussaini types.

ii- Red seedless kishmishi raisins constitute an average of about 44% of the total annual average raisin exports followed by green seedless (34%), black (8.7%) gholadan (0.1%) large red (0.38%) and large yellow green (6%).

iii- USSR has received an average of about 46% of the total annual export of Afghan raisins, followed by India (31%), Pakistan (9%), United Kingdom and other countries.

v- About 69% of the total export has been channeled through Kabul Customhouse. Kandahar, and Mazar-i-Sharif Customs making up 19.5% of and 7.5% of the total export volume respectively.

3. Export Prices

Export prices for Afghan raisins and grapes during the last 15 years, similar to the annual volume of exports, have undergone irregular fluctuations. The lowest prices for both fresh grapes (\$ 74 per MT) and raisins (\$192 per MT) was in the 1338 season, and the highest of \$268 and \$787 per MT respectively in 1352. The average price per MT for the whole period had been \$118.8 and \$358.6 for fresh grapes and raisins respectively.

Table 9 below explains the export price situation.

Table 9 Export Prices and Values for Afghan Grapes & Raisins
1338 (1959) - 1352 (1973)

Year	Export Price		Ratio	Export Volume		Export Value \$ Million	Exchange Rate Afs/\$
	Grapes \$/MT	Raisins \$/MT		1000 MT Grapes	Raisins		
1338	74	192	2.6	17.9	22.7	5.69	45.10
1339	91	241	2.6	23.6	14.3	5.61	39.08
1340	82	229	2.8	10.9	18.9	5.23	41.62
1341	151	272	1.8	7.4	24.9	7.88	50.39
1342	160	376	2.4	14.9	19.6	9.76	50.14
1343	159	377	2.4	26.3	20.0	11.75	58.74
1344	167	281	1.7	29.0	21.2	10.79	74.76
1345	92	254	2.8	43.3	30.5	11.73	74.76
1346	128	309	2.4	42.0	33.2	15.69	75.56
1347	128	537	4.2	41.3	17.8	14.83	74.47
1348	137	449	3.3	44.8	23.9	16.86	75.44
1349	121	365	3.0	46.3	30.6	16.78	83.68
1350	113	261	2.3	53.6	26.6	13.00	84.57
1351	211	449	2.1	36.9	35.2	23.59	80.64
1352	<u>267</u>	<u>787</u>	<u>2.9</u>	<u>33.0</u>	<u>38.6</u>	<u>39.21</u>	<u>61.74</u>
TOTAL	2082	5379		541.2	378.0	208.40	970.69
AVE.	118.8	358.6	3.01	36.1	25.2	13.9	64.71

Considering the average of the first 3 years (1338-40) as a base, then the base export price for fresh grapes and raisins would be \$82.33 and \$220.67 per MT respectively.

The fluctuations of raisins and fresh grapes export prices as shown in Table 9, besides being irregular, have not been followed by variations in the volume of export of these commodities as directly as normally expected.

Likewise the ratio of export prices of fresh grapes to raisins averaging 3.01 for the 15 years period, is much lower than the average conversion ratio of grapes to raisin which is set as 4:1.

On the basis of types of raisins, the highest prices have been received for green raisins (green seedless and yellow-green seeded) the bulk of which is exported to India, followed by black and gholadao raisins.

Appendix 9 in the appendix explains such price differences.

Country wise, the highest price for Afghan raisins is reported in India. In 1973 season the c.i.f. price paid for Afghan raisins in that country has averaged \$1547 per MT. This price against the overall average of \$787 per MT for all export markets and compared to the price received in other countries (USSR \$617, Pakistan \$770, OBC \$768) is surprisingly high. See Appendix 9, in the appendix for detail.

4. Growth in Export

During the past 15 years the export of both fresh grapes and raisins has increased substantially. This increase, comparing the volume of base period (1338-40) with the volume in 1352, is about 100 percent. One of the main and important reasons for this doubling of the export volume is the drastic increase in the world prices for grapes and raisins. Based on the same comparison cited above, the export prices in the course of the past 15 years period have risen by more than 3 times for fresh grapes, and more than 3.5 times for raisins.

By a simple calculation from table 9, and app 10 the following informations are obtained:

i-	Annual average rate of growth in the export of fresh grapes	5.01%
ii-	Annual average rate of growth in the export of raisins	5.76%
iii-	Average annual rate of growth in the export price of fresh grapes	9.47%
	Average annual rate of growth in the export price of raisins	10.28%

A study of appendix 12 (export of raisins by types) reveals that the export of red kishmishi (seedless) raisins has made the largest growth 16.36 percent per year. Followed by large red or munoqa (16.17 percent) and black raisins (3.87 percent). But, on the other hand, green and gholadan raisins are showing a declining rate of growth in their export.

There are probably many reasons for this decline especially with respect to green seedless raisins. The most important reasons would be (a) a reduction in the total production of green raisins, especially in Kohdaman/Parwan valley due to the additional investment involved in its drying process, (b) market opportunities for green raisins are not as good as they are for red ones, because the latter is accepted by very few countries (primarily India & Pakistan).

D. World Export/Import Situations

1. Total Export

The volume of total exports of the leading raisin-producing countries during 1972/73 season, with the inclusion of Afghanistan, had reached about 369.5 thousand MT. During 1973/74, the level of exports of these countries has decreased by about 13 percent in comparison to the 1972/73 level and was expected to further decrease to 330,000 MT, mainly due to reduced production caused by bad weather in Turkey and Australia.

The leading raisin-exporting countries are Greece, Turkey, U.S.A., Australia, Iran, Afghanistan, and South Africa. Countries such as Spain, Cyprus, Argentina, and Chile also export relatively small quantities of raisins. The first group of countries, including Spain, are the producers and exporters of Sultana raisin in the world. Some of these countries, particularly Greece, Turkey, and Australia, produce and export currants to various world markets as well. During 1972/73, Greece and Australia

alone exported 69,200 MT and 4,100 MT respectively of this dry fruit.

A generation ago, the U.S. was one of the world's largest exporter of raisins, accounting for over 25 percent of the world export. By 1970-72, this percentage decreased to 14. Over the past five years (1968-72) U.S. exports of raisins were about constant. Australia's exports fell by 27 percent from 1965-67 to 1970-72. The downward trend of the share of these two developed countries, among the presently big six raisin exporters of the world, will likely become more pronounced in the years to come.

Greece continued to increase its share of the world's export of raisins. Its exports were 70% greater in 1970/72 than in 1948/52. Turkey increased its export by about 73% and Iran by 98%. During 1973 season, while the exports from Greece and Turkey accounted for 50% of the world's total exports, Afghanistan was the third largest exporter of raisins in the world.

2. Importing Countries

The most important world importing markets of raisins, in order of volume of import, are the United Kingdom, W. Germany, USSR, Canada, Japan, Netherlands, Italy, France, and India. The volume of import in these countries ranges from the largest of over 90,000 MT (in the UK) to the smallest of about 10,000 MT in India.

A more detailed account of the volume of imports, and the share of various exporting countries is presented in table_____.

Table 10, Importing Countries, Volume of Imports and the share of main Exporting Countries
1967/68 - 1972/73
(in 1000 short Tons)^{3/}

Main Importing Countries	Average Annual Import 1968/72	Import of 1972/73	Main Exporters and their Market Share in 1972/73 (rounded)						
			Greece	Turkey	Australia	USA	Iran	Afghanistan	S. Africa
	79.8	92.506	15.0	28.6	18.2	3.4	13.8	4.4	3.8
Germany	49.7	53.079	15.7	15.3	9.2	2.1	9.6	-	-
USSR	48.7	- ^{3/}	-	7.7	-	-	-	8.4	-
Canada	25.5	31.993	2.8	-	19.6	6.1	-	-	-
Japan ^{2/}	23.3	29.401	-	2.3	5.3	16.9	-	-	-
Netherlands	16.7	19.364	1.14	14.991	.061	.562	.721	-	-
Italy	16.5	19.7	2.8	16.3	-	-	-	-	-
France	13.9	14.5	4.0	6.3	2.7	-	-	-	-
India	9.7	10.8	-	-	-	-	-	-	-
Total	283.8								

Source: Foreign Agriculture Circular, FDF-1-74) USAID/Washington, Sept. 1974.

Data for total imports and exports of individual countries is not available.

In 1972/73 People's Republic of China exported 2875 tons.

One short tons equals 2000 lbs.

Note: Countries that import relatively smaller quantities or for which data was not at hand, are not included in the Table.

3. Growth and Trend in World Trade

The volume of raisin exports, over the past 20 years (1948/52-1970/72) increased by slightly more than the growth in raisin production. The respective figures are 42 and 40%. Historically, five countries (Greece, Turkey, U.S.A., Australia, and Iran) have accounted for 80% of the world raisin exports.

The trend of world prices over the past 20 years was flat. Furthermore, price fluctuations around the trend were not excessive. For example, Greece f.o.b. export prices have averaged slightly over \$200 per MT with a standard deviation of \$56. UK imports averaged \$345 per MT (c. i. f.) with a standard deviation of \$52. Recently, however, export prices for some of the leading countries have increased, and beginning in October of 1973, raisin prices began to move up sharply and reach a high of \$1500 per MT in London compared to the 1967-71 average of \$348. It is very likely that the latest high export prices will not stay as they are but will help maintain a higher level of world export price for raisins in the future.

4. Competing Countries

As far as fresh grapes are concerned, Afghanistan's traditional export markets are Pakistan and India. In these two markets, Afghanistan has practically no competitor. Although both Pakistan and India are actively trying to develop their own grape production, however, due to many climatic, technical, and marketing considerations, their domestic production will not considerably influence either the volume of present or future development of Afghanistan's fresh grape exports into these countries.

Afghanistan's strongest competitors in the world raisin markets are Iran, Turkey, and the U.S. Afghanistan is in competition with Turkey and Iran to get the largest share of the market of its neighbor, the USSR, which is the largest and most potential market for Afghan raisins but is also bordering with them. The competition of Afghan red raisins with the same type of raisin coming from Iran and Turkey into the markets in the UK and other European countries is even more tense.

Another potential market of natural red raisins is Japan, which is now practically dominated by exports from the United States. Afghanistan with its almost complete reliance on the production of red natural seedless raisins (the same as Thompson's seedless of California, U. S. A.) has good prospects in sharing the Japanese raisin market. By developing the production of yellow-golden sultania raisins in Afghanistan, as other raisin-producing countries such as Australia, Greece, Iran, and Turkey have done, for which all possibilities and favorable conditions exist in the country, the export of raisins would be further developed.

E. The Economics of Grape Production and Marketing

Grapes are the most important fruit crop of Afghanistan. Besides being an important part of diet, fresh grapes and raisins bring more foreign exchange than any of the export items of the country. Grape farming is a specialized agriculture concentrated in specific areas of the country and such farming yields high returns. In the following pages a brief discussion of the most prominent economic aspects of grape production and marketing in Afghanistan is presented.

1. Estimating the Costs and Returns of Grape Production

Costs and returns to the farmers of grape production vary from region to region depending on planting systems, varieties grown, yield, disease and insect damage to the crop, and other local conditions. No such studies providing comparative data on costs and returns of grape production in the various grape growing areas of the country are available. And it is beyond the scope of this study to have undertaken such a time consuming task. What is, however, available on this subject is a report prepared by the Faculty of Agriculture, Kabul University, entitled, The Economics of Grape Production and Marketing in the Kohdaman Valley, Afghanistan, ().

Based on the methodology adopted in the above study and revising its data to the present conditions, the costs and returns situation of grape production in Kohdaman Valley is estimated as follows:

a. <u>Average Cost (Annual):</u> <u>Cost items</u>	<u>Units applied</u> <u>per jerib</u>	<u>Cost per unit</u>	<u>Av. Cost</u> <u>per jerib</u>
- Fixed Cost:			
Labor to establish vineyard	84.5 days	60 afs	84.5*
Land Tax			17.00
Equipment depreciation			65.80
Interest on land value	50,000	6%	3000.00
Unpaid family labor (operational)	32 days	60	1920.00
Total			5087.35
- Variable Cost:			
Hired labor (operational)	47 days	60	2820

Fertilizers:	<u>Units applied per jerib</u>	<u>Cost per unit</u>	<u>Av. Cost per jerib</u>
Animal	88 donkey loads**	5	440
Chemical	3.8 seers***	60	228
Chemicals for plant protection	.97 seers	60	58
Supplies			200
Miscellaneous			120
Total			3866
	Total costs		9953 afs
b. <u>Average annual returns:</u>	<u>Per vine</u>		<u>Per jerib</u>
- Average yield	7 kg		2100 kg
- Used as raisins	4.9 kg		1470 kg
- Used as fresh grapes	2.1 kg		630 kg
- Average production of raisins	1.2 kg		367.2 kg
- Average return of raisins based on 160 afs per seer or 23 afs per kg	27.6		8445.6
- Average return of fresh grapes based on 42 afs per seer or 6 afs per kg	12.6		3780 afs
Total returns	40.2		12225.6

* This figure was derived by prorating 4200 afs (84.5 x50) over a period of 60 years, expected life of a grape vine.

** One donkey load of animal manure averages about 8 seers.

*** One seer = 7.066 kg = 15.58 pounds.

	<u>Per jerib</u>
c. <u>Net average annual returns:</u>	
- Total average annual cost	9953
- Total average annual returns	12226 afs/jerib
- Net annual average returns	2273 afs/jerib

Subtracting the item of family labor from the total cost figure, the net return per jerib will be: $12225.6 - 8033(9953 - 1920) = \text{afs } 4193$

It must be further noted here that the average yield per jerib considered by the study of the Faculty of Agriculture (265.30 seers) and that assumed by the writer (300 seers) in view of the use of both animal manure and chemical fertilizer seems to be low. Compensating for this under-estimation and assuming a yield of 3000 kg per jerib (10 kg/vine), the net return per jerib to the farmer would go over 7500 afs. In Kohdaman Valley no other crop can even nearly reach such a level of net return. Based on such an estimation, a vineyard of 3.5 jerib size which is the **average** size of vineyards in Kohdaman Valley, will on the average bring a total of about 32000 afs of net return per year to the farmer.

2. Added Costs and Returns

The yield estimates made earlier apply to normal viticultural practices and average yield **conditions** in Kohdaman Valley. More improved and different planting systems, such as trellising, etc., and modern viticultural practices that require extra costs will bring about higher returns. PACCA specialists project that an added cost of about 5340 afs per jerib invested in improved viticultural practices and inputs will bring to the farmer an average of about 12150 afs added return provided production credit is available for the entire added costs.

It was reported to the writer that an added cost of about 2500 afs per jerib invested in establishing a chaila planting system, will result in increasing the grape yield by 3-4 times. The modern trellising design newly introduced only in a very few places in Kohdaman is not old enough to have any reliable yield data, nor is any **data** available on the cost and returns on the high-ridged planting systems in Kandahar and northern areas of the country.

3. Recent Developments

As a result of higher economic return of grape production to the farmers, a number of new developments have taken place in the Afghan grape farming in recent years.

a. Area expansion: The establishment of numerous new vineyards has resulted in the substantial expansion of vineyard area during the last decade. Experienced farmers in Kohdaman and Parwan have estimated this expansion from 50 to 70 percent. Nearly the same rate of expansion has taken place in Kandahar and Sangcharak areas.

b. Change in composition: The trend during the past decade has been and currently is to replace old vines with new ones, change other varieties such as gholadan and kandahari to kishmishi in Kohdaman/Parwan area. In Kandahar, the trend is to expand the area of shindokhani grapes by establishing new vineyards of this type of grape at a rapid speed. This trend has not only changed the composition of grapes among other crops in the area, but the coverage of various varieties in the grape farming as well.

c. Improved spacing: All new vineyards have been established with superior stock and better spacing.

d. The use of chemicals: The widespread use of chemical fertilizers, fungicides (sulfur powder and cupravit to control the diseases of powdery mildew and anthracnose) and berelex are of recent development, all of which, especially the former two, have greatly contributed to increased grape production.

e. Raisin cleaning plants: The establishment and operation of the raisin cleaning, sorting, and packing plants in Kabul, Charikar, Kandahar, and Mazar-i-Sharif have boosted the export of raisins and consequently promoted grape and raisin production in the country.

f. Farmers' organizations: The establishment of development centers in Kohdaman, leading to the setting up of farmers' cooperatives as a pilot program executed by PACCA project, is one of the important developments of the recent time.

4. All-Grape Strategy

If the grape growing areas of the country have ideal climatic conditions for grape farming and grape production has proved to be the highest returning enterprise in these areas, then why is it that the area of vineyards has not further expanded than what it is? Or why grow other crops but grapes at all?

The strongest barrier of all to the maximum development and expansion of grape farming in Afghanistan is irrigation water. This is particularly true in the grape growing areas of the eastern (Kohdaman, etc.) and northern (especially Sangcharak and Faryab) zones. The expanded vineyard areas of Kohdaman are already confronted with the problem of shortage of water. The problem becomes more severe when total annual precipitation falls below normal, as demonstrated during the current crop year.

The second important reason why grape area has not further expanded is very much related to the fact that grape production is a highly intensive farming operation, requiring plenty of labor, availability of adequate supplies of manure (including animal manure), fungicides, sprayers, timely credit, and close supervision. If water is not the limiting factor, which is the case with some farmers and in some of the grape growing areas in Kandahar, then it is the combined forces of the problems just mentioned which become detrimental to the expansion of the vineyard area in the country. Likewise, if poor-quality grapes such as black Kandahari or even common kishmishi of Kandahar are not totally or drastically shifted to the most desired type, shindokhani, it is because of these very problems.

5. Fresh Grapes Versus Raisins

Based on retail prices reported by Peterson () for fresh grapes, red raisins and green raisins, the average price for the period of 8 years (1340-47) is figured at 30.75, 102.75, and 131.40 afs per seer respectively. Likewise, the farm prices for these products for the current and last year's season reported from Kōndaman/Parwan area is as follows:

	<u>1352</u>	<u>1353</u>
Fresh grapes	3500-7000 afs per kherwar* (or about 62.5 afs/seer)	4000-4500 afs/kherwar (or about 50 afs/seer)
Red raisins	200-220 afs per seer	140-170 afs/seer
Green raisins		

* 1 kherwar is equivalent to 80 seers.

Using an average grape-to-raisin ratio of 4:1 (the ratio ranges from 5:1 in the early season to 3:1 in the later part of the season), the price equivalence of these products converted to fresh grapes' base will be:

	<u>Retail price (1340-47)</u>	<u>Farm price 1352</u>	<u>Farm price 1353</u>
Fresh grapes	30.75 afs/seer	62.5 afs/seer	50.0 afs/seer
Red raisins	25.69 afs/seer	52.5 afs/seer	40.0 afs/seer
Green raisins	32.85 afs/seer	61.25 afs/seer	70.0 afs/seer

Based on the above figures, the farmers, in spite of the usual delay in payment and the strong suspicion that they are cheated on weights, prefer to sell fresh grapes instead of going through all those extra trouble, cost, and risk to make raisins.

Since the prices of fresh grapes and raisins are not known in advance and the price differential of raisins (particularly red raisins) compared to fresh grapes, is not very attractive, raisin making as a whole in Afghanistan is rarely planned ahead, instead it has rather become an affair of compulsive nature. Since the volume of fresh grape exports and domestic consumption is limited, this turns the fresh grape market more to be in favor of the purchasers rather than farmers.

6. Grape Farming and Small Farmers

The great increases in yield that have become possible and an almost doubling of fresh grapes' and raisins' prices in recent years have together turned grape farming to become the biggest hope for the well-being of small farmers. A small farmer operating a 500-vine vineyard, if credit facilities are available to him, and he is provided with the necessary

technical guidance, can get an average of about 1,000 seers of grapes. Sold at a minimum price of 40 afs per seer his gross income would be 40,000 afs which is quite sufficient for the regular and annual expenses of an average-size family.

7. Business Margin

No published data are available to explain the various expenses involved in exporting one MT of fresh grapes or raisins, and the net profit obtained by exporters. The writer, however, after discussing the subject with some experienced persons, obtained an approximated picture of such business figures which are presented as appendixes _____, _____.

VI. Potentials, Problems and Prospects

A. Ideal Conditions and Vast Potentials

1. Growing Conditions

The climatic conditions of the grape growing areas of the Republic of Afghanistan are among the best in the world for grape farming. The ideal conditions are clearly demonstrated by the presence and production of so many varieties and types of high quality grapes, most of which are grown on a commercial scale throughout the country. The concurrence of internationally known viticulturists who have visited Afghanistan further documents the above statement.

Climatic factors plus suitable soil and land conditions have rewarded Afghan farmers to produce the best quality and the most delicious table grapes thus gaining for their homeland and a world-wide reputation.

The bulk of the total grape production in Afghanistan is of kishmishi group. Kishmishi grapes of Afghanistan are the same as Thompson seedless of California and Sultania of Australia, Greece, Turkey and Iran. Kishmishi grapes are composed of (a) common kishmishi, constituting the major type, (b) shindokhani, (c) black kishmishi, and (d) red kishmishi.

What gives kishmishi grapes a unique importance in Afghanistan are:

- i - This variety is the most adaptable of all grapes and is commercially grown in all major grape growing areas of the country.
- ii - Kishmishi is a table grape producing different sizes and colors of fresh grapes for export and domestic consumption, and as well as the dominant raisin-making grape of the country producing natural red, golden green and black seedless raisins for export and domestic use.

In addition to kishmishi, Afghanistan produces other types, colors and sizes of seeded raisins which are exported annually to the world's raisin markets.

The availability on a commercial scale of the world's best raisin-making grape (seedless kishmishi), plus a number of other raisin-making grapes, the prevailing best climatic conditions for raisin drying, and the easiest and cheapest way by which raisins can be made, can easily make Afghanistan, as termed by some specialists, the raisin capitol of the world.

The varietal differences of grapes, topographical and latitudinal variations of the grape-growing areas have conclusively brought about variations in maturity and harvesting periods and thus have helped the lengthening of the grape marketing season in Afghanistan. This situation promotes both the domestic consumption and export volume of grapes and lessens the overlapping and competition of marketing of grapes of the various grape growing areas of the country.

2. Excellent Market Opportunity

The Republic of Afghanistan is bordering with some of the most populous and potential raisin and grape markets of the world. USSR, the northern neighbor of Afghanistan is the world's third largest import market for raisins, where Afghanistan raisins are well accepted and traditionally have received the largest share (about 40 percent in 1952) of total annual Afghan raisin exports. India, the second most populous country of the world, depends exclusively on Afghanistan for its fresh grape import requirement. The bulk of the raisin needs of India also comes from Afghanistan. Indians are traditionally accustomed to Afghan grapes and raisins and have well accepted the high quality, taste, color and standard of these products from Afghanistan. This is particularly true in the case of golden green seedless kishmishi raisins which is a specialty of Afghan raisin industry and is highly acceptable and valuable in Indian markets.

Pakistan has been the largest market for Afghan fresh grape exports where Afghanistan is historically the sole exporter of fresh grapes and various types of raisins. The geographical situation is such that none of the other major grape producing countries can profitably compete with Afghanistan in the Indian and Pakistani markets.

Afghanistan for many years has been exporting various types of raisins to the United Kingdom, West Germany, the Netherlands, other barter and free trade European countries and in recent years to the People's Republic of China. In all of these countries Afghan raisins, especially the red (seedless) naturals have good acceptance.

Iran has just emerged as a new importer of Afghan fresh grapes. There are reported opportunities for Afghan fresh grapes in the Persian Gulf oil-producing countries.

Afghanistan's other obvious marketing advantage is that it can offer many types and qualities of grapes and raisins to the foreign markets depending on individual country's preferences. Excellent possibilities await Afghanistan to go into the production and marketing of yellow golden Sultanina raisins and thus compete with countries (Australia, Greece, Turkey and Iran) that are presently producing and exporting this type of seedless raisin in the world. The cost of production at which Afghan farmers can produce all types of raisins is much lower than it is in

other producing countries and this is another opportunity which adds to the many others already mentioned, promising the brightest future for Afghan grape and raisin industries.

3. Greatest Yield and Production Potential

The national grape yield per vine in Afghanistan, inclusive of all ages, varieties and planting systems, is estimated around 4 kg or about one MT per jerib (5 MT per hectare). But by applying simple improved viticultural practices, yields of 10-14 kg per vine have been obtained. The application of optimum improved practices can push this average even higher, very probably up to 20 kg per vine. The highest yields of 28 to 35 kg per vine have been reported in Kohdaman/Parwan and Kandhar area and yields of up to 210 kg of grapes per vine have been reported for some of the superior vines in the North.

From all indications and the results of many experiences and practical demonstrations of both farmers and specialists, it is very possible to increase the average yield from 4 kg per vine to 10-14 kg per vine or 2.5 to 3.5 times. Tapping this yield potential, the coming into production of all the newly-planted young vines and the rapid change of old vines to young ones of selected stock plus the shift from low-yielding to high-yielding varieties, all lead to a promise of a much greater grape production in the near future.

B. Main Problems

1. Agricultural

Viticulture in Afghanistan has totally developed from the experiences of farmers themselves. They have done what they knew and what they have seen and learned from other farmers. There has been no formal research and experimentation program ever undertaken by the Government to take the leadership and properly guide vine farmers to improve their viticultural activities.

Now that the annual grape production has become more commercialized and its economic role in the overall development of the country is solidly understood, it is high time to take a scientific and technical approach toward the development of viticulture in Afghanistan.

For Afghanistan to be able to better compete with the major raisin-producing countries in the world markets, she must increase the yield of grapes, improve the quality, produce the best quality and colors of raisins and develop the production of grapes and raisins in the most efficient and economic way. The country needs to make use of the modern science and technology in present-day viticulture adapted to its local conditions. This calls for an institutionalized, adaptive research program of a sustained nature, aiming to make optimum use

of the scarce resources and maximizing farming returns.

Research programs need to be directed in the following activities:

- i - the production of superior stock
- ii - cost and return studies of grapes based on varieties and types of grapes and local conditions
- iii - the determination of which of the various planting systems is more desirable and economical for a particular area and/or variety
- iv - economic application of fertilizers and other growth regulators
- v - method and timing of irrigation
- vi - the most effective method of disease control
- vii - the effects of grazing in the vineyard after the grape is harvested, which is now a usual practice, on subsequent yield
- viii - raisin drying and production methods
- ix - market research and consumption survey

The supply of barnyard manure which is so important in grape-farming and its profitability has already been accepted by the farmers generations ago, is deficient in most of the grape growing areas of the country particularly Kohdaman and Parwan areas. The use of this matter is of special importance in improving the water holding capacity of the soil and quality of grapes and raisins. The importance of phosphatic and potash fertilizers which are also important for the improvement of grape quality, production and soil structure, needs to be vigorously popularized.

In many of the grape growing areas of the country, particularly Kohdaman, Parwan, Sangcharak, Faryab and other areas in the eastern zone, shortage of water is the No. 1 problem in grape production. Shortage of irrigation water together with the uncertainties involved with respect to its upcoming supply, as irrigation systems are mostly primitive, put limitations on the expansion of vineyard area and discourages the optimum use of yield-boosting inputs such as chemical and barnyard manures which are so much needed for increasing grape

production and improving its quality. On the other hand, excess of underground water in areas such as Panjwayee and others in Kandahar has resulted in reduced yield, slower growth, shorter life of vines, and in some places gradual dying of vines.

An efficient extension service to guide, encourage, and accustom farmers to adopt, on sustained basis, disease control measures, the use of manures, and other modern viticultural practices is a key to the success of properly developing the grape and raisin industries in Afghanistan. Unfortunately such a service presently does not exist for the grape farmers and it will be a great loss if the country continues to be without it in the future.

Commercial viticulture is an integrated enterprise. Its proper development depends on the synchronized development of all the disciplines involved - of which extension service is one of the important and leading one, through which other disciplines such as credit, marketing and cooperatives can be better and more easily developed.

2. Marketing

Afghanistan's fresh grape and raisin marketing is confronted with a number of problems, especially in its exporting side. The importance and intensity of these problems will further increase when the commercial production of grapes is doubled, as it can potentially be easily done in the future, and a larger volume of grapes and raisins have to be exported. There are problems domestically and as well as in the foreign markets for both fresh grapes and raisins.

The most important problems in the export markets are in the following areas:

- i - Managing the flow of fresh grapes according to market demand to Pakistan and India.
- ii - Transit delays, many trucking transfers and rough handling of fresh grapes.
- iii - Quota restrictions of fresh grapes in India and high import taxes on Afghan raisins and fresh grapes in both India and Pakistan.
- iv - Advertising in the European, Persian Gulf and Japanese markets to create a good image for Afghan raisins.

Domestically, the most important marketing areas where serious attention is required are:

- i - the drying of raisins "off the ground" on simple and low-cost materials such as locally made mats, should be encouraged.
- ii - raisin making on "planned basis" should be encouraged.
- iii - the firming up of grading and standardization measures to export raisins of high quality, uniform size and desired colors to the world markets.
- iv - the supervision and coordination of raisin exporting in such a way to assure a dependable supply to the importers and help to promote the export of this commodity.
- v - the setting up and efficient operation of a market information service.
- vi - to open up the vineyards and villages and connecting them with all-weather highways by the implementation of a farm-to-market road construction program.
- vii - analytically studying the economics and necessity of cold storage facilities for fresh grapes destined to be exported.
- viii - the abolishing or at least reduction of advance selling of raisins by small and poor farmers to the local money lenders through a liberal and encouraging supervised credit program.
- ix - to make available to the farmers an adequate supply of the necessary inputs such as fertilizers, fungicides, etc. on easy terms and at all times.

3. Higher Prices and Low Purchasing Power

In the domestic markets and in those export market such as India and Pakistan where the level of purchasing power is generally low, very high prices of fresh grapes and raisins, as has been the case in recent years, will naturally eliminate many consumers from the market. This situation is further intensified by imposing heavy taxes on the import of these commodities into India and Pakistan and on their export here in Afghanistan.

4. Organization

Farmers can market their produce more profitably, can receive production credit and farm supplies more easily and can have better access to the research findings through extension service, if they are properly organized. In Afghanistan, cooperative societies, if operated on sound management practices, are the best organizations that can assure farmers the maximum possible return for their produce. These organizations, to be successfully operating and rapidly developing, must prove and demonstrate not only once but continuously to the farmers that they are more useful to the farmers than the usual merchants or middlemen system. It is then that farmers will begin to trust and support cooperatives as their own marketing organization.

Unfortunately such farmers' organizations either do not exist in most of the grape growing areas or a few that have been lately established in Kohdaman area do not operate as anticipated.

Likewise the exporters of fresh grapes and raisins do not have a formal organization through which exports can be channelled and supervised giving a stronger competitive and bargaining position to the Afghan exporters in the world markets.

C. Prospects

The future development of Afghan raisin and fresh grape industries depends very much upon how well the export of these commodities is promoted. Because of the limitations of fresh grape export and domestic consumption, it is the volume of raisin exports which determines the rate and extent of future development of grape farming in Afghanistan. The central issue in the whole affair is what price and net return the farmer gets for marketing his produce (grapes) either fresh or in raisin form.

The overall prospects of this important and highly integrated agricultural enterprise in Afghanistan is strongly influenced by the manner in which the development of various phases proceeds and progresses.

1. Yield, Production and Quality

The recent trend of establishing new vineyards of kishmishi grapes, the changing of old vines to new ones, the coming into production of new vineyards, and the progressive adoption of chemical fertilizers, fungicides and growth regulators such as berelex, all work toward higher yields, increased production and better quality of grapes and raisins for export and domestic consumption. With the

shortage of irrigation water already felt in many of the grape growing areas, and in order to reduce the cost of production of raisins and fresh grapes, the wisest policy will be to concentrate on increasing yield and improving the quality of grapes and raisins.

The establishment of raisin cleaning, sorting and packing plants in the main raisin producing areas of the country with sufficient capacity for expansion supports the export of raisins to the world markets. The expected expansion of Shindokhani grapes which have proven to be a better keeper and highly-priced in Indian and Pakistani markets, promises a good future for the fresh grapes industry the introduction of improved drying methods and the possibility that Afghan farmers, in addition to her world-known natural seedless Sultania, can produce golden-yellow seedless raisins as well, is another indication of prosperity for the raisin industry of Afghanistan.

2. Marketing

The recent attractive trend of prices for raisins and fresh grapes making grape farming one of the highest returning agricultural enterprises, is the greatest incentive to the farmers of Afghanistan to develop the production and marketing of grapes and raisins. The trend of these prices is so that it further promotes specialization of grape farming. With the implementation of a wheat stabilization program in the country, the expansion and specialization of grape farming will develop more rapidly. The recent shift of emphasis from green raisin production to red raisin - which has broader acceptance and better market opportunities in the world - is another indication pointing towards a brighter future for Afghan grape farmers.

Afghanistan's immediate proximity with the world's most important and developing raisin and fresh grape markets and the existence of very friendly relations with them, promise desirable export conditions for Afghan raisins and fresh grapes in the future. The initiation in the current season of exporting fresh grapes to Iran is a useful step not only in the promotion of total export of grapes, but it will also encourage the Afghan grape farmers from Herat to develop their grape production in its commercial form with the most desirable variety for export.

3. Afghanistan's Comparative Advantage

With the increase in population and rising level of personal income, world demand for raisins is also increasing. Afghanistan is in an excellent position to capture even a larger share of the world market for raisins and increase the income of grape farmers and build up its foreign exchange earnings. There are several

reasons why Afghanistan can enjoy this position.

- i - The developed raisin-producing countries of the world such as the U.S. and Australia have already given greater emphasis to their more profitable wine-making industries, thus proportionately reducing the area of new raisin producing vineyards.
- ii - Many countries, especially the developed ones, have almost exploited the yield-increasing potential of their grape vines.
- iii - Many of the grape-producing countries have a limited amount of land available for new plantings and that which is available requires a lot of capital investment to put in vineyards.

Afghanistan, by putting the bulk of its grape crop in raisin production, having the greatest potential for: (a) increasing yield on the existing vineyards, (b) improving the quality of raisins, (c) developing an efficient marketing system, and (d) having plenty of cheap labor, can substantially increase the volume of its grape and raisin production at relatively lower cost, and can thus capture even a larger share of the world raisin and grape markets.

34° 33' N. 69° 12' E.

Temperature in °F

El. 5 914 Feet

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Mean Maximum Temperature	41.7	45.1	55.0	63.5	74.8	85.5	89.2	89.8	83.8	72.1	57.7	46.8
Mean Minimum Temperature	18.3	24.6	34.5	42.3	49.1	54.3	58.5	57.0	48.6	38.8	29.5	21.6
Mean Temperature	27.7	33.3	43.7	52.7	62.8	73.0	76.6	75.6	67.6	55.4	40.6	30.6
Highest Temperature for Month	65.8	65.1	73.4	80.1	89.6	95.0	98.4	97.2	92.8	88.9	74.5	58.5
Lowest Temperature for Month	-14.6	-7.1	11.7	29.8	32.9	43.7	48.2	46.4	32.5	26.6	15.3	-2.0
Days Maximum 86° or Above	0	0	0	0	1	17	25	28	1	1	0	0
Days Minimum 32° or Below	31	23	10	1	0	0	0	0	0	3	21	30
	<u>Precipitation in Inches</u>											
Mean Monthly Precipitation	1.09	7.54	2.91	4.62	1.16	0.06	0.15	0.07	0.02	0.05	1.29	0.53
Maximum Precip. for Month	2.90	4.28	4.94	7.03	4.19	0.17	0.66	0.27	0.12	0.21	3.66	1.25
Minimum Precip for Month	0	1.29	1.77	2.42	0.26	0	0	0	0	0	0	0.19
Greatest 24-Hour Precipitation	1.28	1.20	1.14	1.82	0.95	0.15	0.51	0.27	0.12	0.19	1.28	0.30
Days of Rain	2	4	11	14	10	2	3	1	1	1	5	2
Days of Snow	5	5	2	6	0	0	0	0	0	0	1	3
Mean Relative Humidity	73	68	65	71	53	35	39	40	45	48	58	61
Mean Maximum Rel. Humidity	98	98	97	98	94	78	88	82	85	87	98	97
Mean Minimum Rel. Humidity	27	26	17	24	14	13	14	13	11	14	15	18

Mean Annual Temperature: 51.8

Mean Annual Precipitation: 14.48"

Greatest Annual Precip.: 19.67"

Mean Annual Temp. Range: 49.0

Least Annual Precipitation: 7.87"

Years of Record: 8

Source: J. Matthai, Faculty of Education, University of Kabul

Appendix 2, Grapes of Afghanistan
(by local names)

1. Kishmishi, common, white or Gerdak
2. Kishmishi, black
3. Kishmishi, red
4. Shindokhani, white
5. Shindokhani, red
6. Hussaini, common
7. Hussaini, Kilk-i-Aroos
8. Aita, white
9. Aita, red
10. Aita, black
11. Black Kandahari, toran
12. Katta
13. Kohdaman Kandahari
14. Gholadan
15. Munuqa
16. Lal, Vakdana
17. Lal, white
18. Lal, red
19. Lal, seeded
20. Ranza, white
21. Ranza, red
22. Taifi, red
23. Taifi, white
24. Khalili, white
25. Khalili, red
26. Soyebi, white
27. Soyebi, red
28. Shonetak
29. Fakhri
30. Herati
31. Khalchini
32. Sheikhali
33. Sabooni
34. Kala Ghauchak
35. Qalami
36. Shakar Angor
37. Maska
38. Oqili, white

Appendix 2 (cont) Grapes of Afgl

39. Oqili, black
40. Kala-i-zagh
41. Obak
42. Zaghak
43. Atumcha
44. Chall
45. Pestan-i-Buz
46. Shahabi
47. Turkmani
48. Alaman Toyeedi
49. Gurda-i-Gau
50. Objosh
51. Ala Bara
52. Garangani
53. Zanboorak
54. Lal (seeded)
55. Jauz
56. Askari, white
57. Askari, red
58. Pushanki, white
59. Pushanki, red
60. Ayati, white
61. Loghi, black
62. Loghi, red
63. Sangenak, white
64. Mir Hamadi
65. Zerjumi
66. Serkagi
67. Qalamak
68. Muskagi
69. Kha-i-Kauk
70. Chashm-i-Gau
71. Kasnadara, white
72. Kasnadara, red
73. Shabi, red
74. Shabi, white
75. Khair-i-Ghulaman
76. Kishnishi Siagak

Appendix 3, Grapes of Kandahar by Local Names

1. Kishmishi Girdak, white
2. Kishmishi Girdak, red
3. Shindokhani, white
4. Shindokhani, red
5. Aita, common
6. Aita, qalami
7. Aita, black
8. Hussaini'
9. Toran, black Kandahari
10. Tandau, white
11. Tandau, red
12. Askari
13. Raucha, white
14. Raucha, red
15. Khalcheeni
16. Soybi
17. Lal, white
18. Lal, red
19. Lal, Yakdana
20. Khair-i-Ghulaman
21. Khalili
22. Fakhri
23. Herati
24. Sheikh Ali
25. Sabooni
26. Kala Ghauchak
27. Qalami
28. Taifi

Appendix 4, Grapes of Kohdaman/Parwan by Local Names

1. Kishmishi
2. Hussaini
3. Katta
4. Kandahari
5. Gholadan
6. Objosh
7. Munoga
8. Shindokhani
9. Khalili
10. Lal
11. Chashm-i-Gau
12. Sayebi
13. Kishmishi Siagak

Appendix 5, Grapes of North of Hindo Kush (Jozjan, Faryab, Balkh Provinces, etc.)

1. Kishmishi, white
2. Kishmishi, black
3. Taifi, white
4. Taifi, red
5. Shoretak
6. Hussaini, common
7. Hussaini, Kilk-i-Aroos
8. Soyebi
9. Shakar Angoor
10. Lal Yakdana
11. Khalili, red
12. Khalili, white
13. Raucha, red
14. Raucha, white
15. Maska
16. Kala-i-Zagh
17. Obak
18. Zaghak
19. Atumcha
20. Chall
21. Pestan-i-Buz
22. Awgeli, white
23. Shahabi
24. Turkmani
25. Fakhri
26. Alaman Tuyeedi
27. Gurda-i-Gau
28. Lal, red
29. Objosh
30. Ala Bara
31. Awqeli, red
32. Garangani
33. Zanboorak
34. Lal, seeded
35. Chashm-i-Gau
36. Jauz

Appendix 6, Grapes of Herat by Local Names

1. Lal, white
2. Lal, red
3. Rauchi, white
4. Rauchi, red
5. Khalili
6. Kishmishi
7. Hussaini
8. Kilk-i-Aroos
9. Askari, white
10. Askari, red
11. Pushanki, white
12. Pushanki, red
13. Soyebi, white
14. Soyebi, red
15. Ayati, white
16. Munaqi, black
17. Loghi, black
18. Loghi, red
19. Fakhri, red
20. Sangenak, white
21. Mir Hamadi, white
22. Zerjumi, white
23. Serkagi, black
24. Qlamak, white
25. Muskagi, white
26. Kha-i-Kauk
27. Chashm-i-Gau
28. Kasnadara, white
29. Kasnadara, red
30. Aqali, red
31. Shabi, white
32. Shabi, red

Appendix 7, The approximate cost of exporting 1000 kg of raisins C&F continent & UK at an assumed purchase price of 35 afs per kg (afs 245 per seer)

1. Purchase Price	Afs	35000
2. Ten Percent Disappearance	"	3500
3. Freight	"	4145
% Tare	"	166
4. Customs	"	750
5. Transport to Proc. Plant	"	200
6. Processing & Packing	"	4200
Total Cost C&F	"	47961
At \$1 = afs 61		\$ 786
7. Two Percent Interest		\$ 16
8. Four Percent Commission		\$ 31
9. Three Percent Commission on ocean freight		\$ 2
Total \$ Cost Net C&F UK Ports		\$ 835
Total Cost Afs	"	50935
Total Cost Save Purchase Price	"	15935
Total Cost Save Purchase Price per Seer	"	111.5

Source: Final Report, Marketing of Raisins Through Cooperatives. Based on the work of Theodor F. Petersen. FAO/SWE/TF FAO, Rome, 1974.

Note: A private organization has roughly estimated the cost of exporting raisins, save purchasing price, at 95 afs/seer.

Appendix 8 Export of Raisins and Grapes by Main Customhouses
 1343 - 1350
 (in 1000 MT)

YEAR	Kabul		Kandahar		Mazar		Kunduz		National Total	
	Raisins	Grapes	Raisins	Grapes	Raisins	Grapes	Raisins	Grapes	Raisins	Grapes
1343	10.70	21.54	8.16	4.26	2.05	-	-	-	20.91	25.80
1344	8.32	18.80	10.32	10.14	2.43	-	-	-	21.07	28.94
1345	11.31	38.36	7.50	4.91	8.60	-	2.92	-	30.83	43.27
1346	11.97	36.36	9.69	5.70	7.94	-	4.50	-	34.10	42.06
1347	5.20	36.82	7.00	4.45	4.50	-	1.08	-	17.61	41.27
1348	12.88	36.80	5.60	8.04	2.33	-	2.87	-	23.68	44.84
1349	13.72	41.40	7.18	4.90	7.16	-	2.56	-	30.62	46.30
1350	13.07	48.30	3.81	5.28	6.75	-	2.93	-	26.54	53.58
Average	<u>10.90</u>	<u>34.80</u>	<u>7.4</u>	<u>5.93</u>	<u>5.2</u>	<u>-</u>	<u>2.76</u>	<u>-</u>	<u>25.6</u>	<u>40.1</u>

Source: Export of Merchandise, Ministry of Commerce, Kabul.

Appendix 9 Calculating Commercial Production of Grapes by main Producing Zones Using Export Data and Estimates on Domestic Consumption
1343 - 1350
(in 1000 MT)

Year	Eastern Zone			Southwestern Zone			Northern Zone	
	<u>Total Export</u> fresh form	<u>Consumption</u> estimate	<u>Total</u>	<u>Total Export</u> fresh form	<u>Consumption</u> estimate	<u>Total</u>	<u>Total Exp.</u>	<u>Consump.</u>
1343	64.34	21.0	85	36.90	12.30	49	8.20	3.0
1344	52.08	14.0	65	51.42	14.0	66	9.72	3.2
1345	95.28	31.7	127	34.91	11.6	47	34.4	11.4
1346	102.24	34.0	136	43.46	11.0	55	31.76	10.5
1347	61.94	20.0	82	32.45	10.8	43	17.32	5.8
1348	99.80	33.3	133	30.44	10.0	40	9.32	3.1
1349	108.52	36.1	145	33.62	11.20	45	28.64	9.3
1350	112.30	34.0	146	20.52	7.0	28	27.00	9.0
Average			115			48		
% of Total			60			25		

Source: Table ____ and assuming that an average of about 25% of the annual total production of grapes is consumed domestically.

- Notes:
- 1 - Raisins export shown for Kunduz on Table ____ is assumed to belong to the Eastern Zone
 - 2 - A grape to raisin conversion ratio of four to one is used.
 - 3 - Based on the above calculation the average annual fresh grapes production of the three main zone approaches at about 192,000 MT.

Appendix 10 Export of Raisins by Countries (Quality in 1000 MT, Price in \$/MT and Value in million \$)

		<u>1352</u>	<u>1351</u>	<u>1350</u>	<u>1349</u>	<u>1348</u>	<u>1347</u>	<u>1346</u>
Total	V	30.40	15.80	6.95	11.18	10.71	9.54	10.287
	Q	38.61	35.17	26.62	30.64	23.87	17.76	33.24
	P	787	449	261	365	449	537	309
USSR	V	10.37	2.29	4.98	4.24	3.19	1.34	4.805
	Q	16.82	8.44	18.99	15.15	11.57	6.23	21.808
	P	617	271	262	280	275	215	220
India	V	11.46	10.74	0.06	4.81	6.55	7.37	4.262
	Q	7.41	16.23	0.146	7.923	8.63	8.02	7.764
	P	1574	662	411	607	759	919	549
Pakistan	V	2.38	0.32	0.39	0.50	0.32	0.53	0.45
	Q	3.09	0.98	1.40	1.657	1.22	2.05	2.16
	P	770	327	279	302	258	259	209
UK	V	0.77	0.88	0.33	0.29	0.15	0.26	0.110
	Q	2.57	3.34	1.274	0.992	0.65	1.26	0.405
	P	300	263	259	292	238	205	271
FRG	V	0.070	0.032	0.012	0.015	-	0.003	0.052
	Q	0.193	0.117	0.045	0.050	-	0.013	0.210
	P	363	274	267	300	-	264	246
OBC	V	3.615	1.10	1.053	1.000	0.21	0.028	0.037
	Q	4.71	4.40	4.456	4.365	1.79	0.136	1.775
	P	768	250	236	229	119	206	208
OC	V	1.72	0.44	0.114	0.149	-	0.008	0.025
	Q	3.79	1.66	0.306	0.516	-	0.043	0.109
	P	454	265	373	289	-	191	225

Annex 10 (Cont'd)

Raisins

		<u>1344</u>	<u>1343</u>	<u>1342</u>	<u>1341</u>	<u>1340</u>	<u>1339</u>	<u>1338</u>
Total	V (\$M)	5.95	7.557	7.380	6.773	4.333	3.456	4.367
	MT (1000)	21.18	20.134	19.610	24.92	18.894	14.312	22.749
	S/MT	281	377	376	272	229	241	192
USSR	V	2.00	1.68	2.163	4.020	2.135	0.936	1.438
	Q	8.62	6.642	9.061	16.94	11.117	4.776	5.786
	P	232	253	239	237	192	196	249
India	V	2.66	4.439	4.289	2.533	1.920	0.692	2.565
	Q	7.44	9.162	7.632	6.891	6.289	5.581	12.862
	P	357	485	562	366	305	124	199
Pakistan	V	0.95	1.297	0.828	-	0.251	0.990	0.718
	Q	3.44	3.937	2.490	-	1.262	3.805	3.687
	P	275	330	333	-	199	260	195
JK	V	0.030	0.109	0.092	0.004	-	-	-
	Q	0.15	0.181	0.020	0.013	-	-	-
	P	199	602	109	285	-	-	-
FRG	V	0.007	0.010	-	-	-	-	-
	Q	0.040	0.036	-	-	-	-	-
	P	181	276	-	-	-	-	-
JBC	V	0.283	0.015	0.074	0.223	0.024	0.019	0.039
	Q	1.404	0.067	0.388	1.062	0.202	0.150	0.302
	P	202	224	191	210	116	125	130
DC	V	0.023	0.004	0.004	0.003	0.004	-	0.018
	Q	0.084	0.011	0.016	0.013	0.019	-	0.111
	P	278	324	250	216	187	-	160

Source: Export of Merchandise from Afghanistan, Ministry of Commerce, Kabul.

APPENDIX 11

Raisin's Commercial Production of Major Raisin-Producing Countries (in 1000 short tons)

<u>Year</u>	<u>Argentina</u>	<u>Australia</u>	<u>Greece</u>	<u>Iran</u>	<u>S. Africa</u>	<u>Spain</u>	<u>Turkey</u>	<u>U.S.</u>	<u>Total</u>
1965	3.9	103.5	107.0	47.0	9.7	11.0	132.0	270.0	684
1966	3.2	90.6	95.0	70.0	10.8	7.7	81.0	280.0	639
1967	6.2	105.5	62.8	50.0	9.2	8.9	103.0	181.0	527
1968	12.1	82.6	106.0	65.0	13.0	8.3	113.5	264.0	665
1969	2.2	49.1	100.0	38.6	18.5	5.5	99.0	251.0	564
1970	3.3	94.4	90.5	66.0	13.7	7.7	145.0	193.4	614
1971	4.1	55.4	96.3	66.0	13.4	3.6	110.0	191.0	540
1972	2.9	109.2	78.8	50.0	13.9	3.3	117.0	105.0	480
1973	2.8	54.7	60.6	55.1	16.4	6.4	94.0	215.0	505
Total	40.7	745.0	797.0	487.7	118.6	62.4	994.5	1950.4	5223
Average		82.8	88.5	54.2	13.2	6.9	110.5	216.7	580

Source: Foreign Agriculture Circular, Foreign Agriculture Service, U.S.D.A., Washington, D.C., Sept. 1974.

Appendix 12, The Export of Raisins by Type

Year	Red	Kishmishi	Green	Kishmishi	Black	Raisins	Golden		Large	Red	Large	Yellow-Green
	MT	S/MT	MT	S/MT	MT	S/MT	MT	S/MT	MT	S/MT	MT	S/MT
1338	4821	139	14109	211	1355	177	102	81	66	96	2178	207
1339	2217	171	9045	250	914	230	118	88	88	127	1894	307
1340	3905	143	10621	262	2461	173	2	151	47	149	1720	313
1341	11110	234	10960	310	1795	232	-	-	101	347	953	335
1342	4736	206	11177	448	1971	231	14	342	52	176	1659	503
1343	4806	219	12163	439	1231	252	40	248	104	263	1691	486
1344	7479	212	9297	332	2389	263	61	229	66	272	1888	323
1345	16063	243	11376	274	2137	245	94	192	83	245	780	242
1346	17362	210	12007	450	2623	239	7	194	144	131	1097	536
1347	6493	336	6595	729	2716	289	8	564	177	304	1768	965
1348	9716	260	10610	621	1939	364	28	502	38	604	1538	553
1349	15535	283	9827	489	3838	340	68	396	133	300	1242	495
1350	20083	247	4258	318	2230	276	1	246	8	157	39	386
1351	16000	283	12574	670	3962	326	13	341	31	258	2679	591
1352	<u>26138</u>	<u>619</u>	<u>7940</u>	<u>1243</u>	<u>2582</u>	<u>729</u>	<u>22</u>	<u>1070</u>	<u>236</u>	<u>801</u>	<u>1688</u>	<u>1342</u>
Average	11071	257	8573	470	2200	292	25	300	95	282	1521	510
Base	3648		11258		1577		74		67		1931	
Growth Rate	16.36		-2.65		3.87		-8.91		10.17		-1.02	

Source: Export of Merchandise, Ministry of Commerce, Kabul, Afghanistan

Appendix 13 . . . Approximate Expenses
and Profit Margin of Exporting Fresh
Grapes to Pakistan. Based on
1953 Rates. Per Crate.

	<u>Alghanis</u>
1. Purchasing Crate (2 seers wooden container)	12
2. Other packing expenses <u>per crate</u>	9
3. Transportation up to the Customs House	3.5
4. Customs permit (3,000 afs/truck)	7.5
5. Transportation from Kabul to Pakistan	10.5
6. Price to the driver	3.0
7. Sales tax	2.50
8. Commission, etc.	10.50
9. Telegraph, porter service	2.50
10. Rent other miscellaneous expenses	<u>1.50</u>
	Total 60 Afs
11. Price of the grape (50 afs per seer)	100
12. Cost of a crate of grapes reaching Pakistan market	160
13. Sale price in Pakistan market	about 190
14. Profit per crate	about 30
15. Percentage of profit	about 16 percent

Appendix 14, List of References

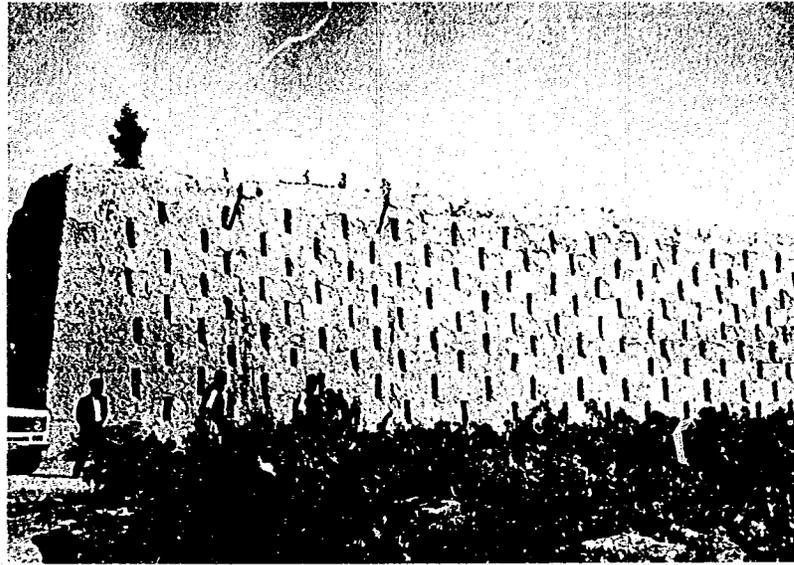
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Shindo Khar: Grapes grown in Qara Bagh, Kohdaman.



Excess water and poor drainage in Panjwayee, Kandahar has caused stunt growth and even dying of the vines and the collapse of the raisin making house or kishmish khana.



A view of a typical green raisin drying house (Kishmish Khana) in Kandahar.



Modern Trellising System has just been introduced. Photo shows a view of such system in Sheikhan village, Kohdaman.



Vines are covered by hay in the northern provinces (Jozjan, etc.) to protect fruits from damage and loss caused by bees.



A view of the bow-shaped locally trellising system in the Peroze Nakhcheer Valley of Samangan province.



Chaila System of vine planting.