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A study on the economic analysis of pistachio farms in _anliurfa province

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SUMMARY – In this study, the economic structure and results of the economic activities of the pistachio farms in _anliurfa province were analysed in the year of 1996-1997 production period. In 14 villages, representative study area with the respect to natural factors and agricultural techniques, 56 farms were classified into three groups as 1-50, 51-150 and more than 150 da by using the method of stratified random sampling. According to the result of the research, the land ownership of pistachio enterprises was farmers himself. The average farm size was 78.48 da with non-irrigation. And, the average number of plots per farm was 2.46. The average size of farm family was 7.43. The average farm labour power was 6.96 manpower units. Percentage of land, building, plant, tool-machines, animals and working capital were 21.96, 3.92, 60.15, 8.28, 0.33 and 5.36 of the active capital respectively. Of this 866,490,000 TL total costs, 41.95% was fixed and 58.05% was variable costs. 84.45% of 821,011,000 TL, which was the average family income, was agricultural income. However, 15.55 of the average family income was external income.

Key words: Pistachio, farm, economic analysis.

RESUME – "Etude de l'analyse économique des fermes de pistachiers dans la province de Sanliurfa". Dans cette étude, la structure économique et les résultats des activités économiques des fermes de pistachiers dans la province de Sanliurfa ont été analysés sur l'année correspondant à la période de production 1996-1997. Dans 14 villages, zone d'étude représentative quant aux facteurs naturels et techniques agricoles, 56 fermes ont été classées en trois groupes de 1-50, 51-150 et plus de 150 da en utilisant la méthode d'échantillonnage aléatoire stratifié. D'après le résultat de l'étude, la propriété des terres pour les entreprises de pistachiers appartenait aux agriculteurs eux-mêmes. La taille moyenne des exploitations était de 78,48 da sans irrigation. Le nombre moyen de parcelles par exploitation était de 2,46. La taille moyenne de la famille sur l'exploitation était de 7,43. La force moyenne de travail sur la ferme était 6,96 unités de travail-homme. Les pourcentages de terres, bâtiments, plantes, machines-outils, animaux, et capital circulant étaient de 21,96, 3,92, 60,15, 8,28, 0,33 et 5,36 du capital actif respectivement. Pour ces coûts totaux de 866 490 000 TL, 41,95% étaient des coûts fixes et 58,05% étaient des coûts variables. 84,45% de 821 011 000 TL, qui était le revenu moyen par famille, provenaient de revenu agricole. Cependant, 15,55% du revenu moyen par famille était un revenu externe.

Mots-clés : Pistachier, ferme, analyse économique.

Introduction

Agricultural sector still plays an important role in the development and social-economic structure of our country. 41.1% of our population live in the country side and agricultural sector meets 16.8% of our national income and 11.7% of our exports. 45.9 percentage of active population works in the agricultural sector.

Turkey has many advantages in the growing of fruit in terms of climate conditions and source of soil. Pistachio is one of these fruits and present potential of the pistachio does not evaluated well. United States of America and Iran are two important countries, which grow most of the pistachio growing in the world. These two countries have a very strong level in the production of the pistachio.

Although production of the pistachio in our country are present many years ago, the main reason why pistachio production is low that dry agricultural techniques are used at the growing it. According to data in 1997, about 27 million ha of cultivable agricultural land (3,078,000 ha) was left for orchards, olive grove and viniculture. 2.16% of total land for fruit production (1,618,000 ha).

Pistachio is the main fruit grown in the southeastern Anatolia region. The province of _anliurfa is

the first rank in terms of number of the pistachio trees and production. As a second rank the provinces of Gaziantep, Adiyaman and Siirt follow the _anliurfa regarding the number of trees and production.

Since each agricultural activities must be analysed economically, economic analysis of pistachio farms are also required. According to the results of economic analysis, productivity is determined. Economics analysis is also important in terms of farmers since they make a rational decision based on the result of this economic analysis.

There is not enough documents about economic analysis of pistachio farms in our country. Hence, determining of the producer, problem and recommendations for these problems become an important issue in this area.

Previous studies on this issue are listed below: (i) Dilmen (1976), economic analysis of pistachio production in the province of Gaziantep; (ii) pistachio and grape production and their cost in the provinces of _anliurfa and Gaziantep region (Edipali and Demir, 1989); and (iii) the cost and inputs of pistachio farms in the province of _anliurfa (Yildiz and Karlı, 1999).

Material and method

Material

General and specific information about research area was obtained from Agriculture and Rural Development Center in _anliurfa, Statistical Institute of the state and Birecik and Bozova branches of Agriculture and Rural Development Center in _anliurfa. Besides, previous studies on this subject was reviewed.

Main material of the study was the data collected from study area by public survey. The data was belong to year of 1996-1997 production period.

Method

In this study, to test the accuracy of the information obtained from poll and to determine population differences, the method of stratified random sampling was used (Güne_ and Arıkan, 1985).

The sample size was determined as 56 based on results and sample farms were selected randomly. Farms were classified into three groups as 1-50, 51-150 and more than 150 da. According to this classification, there was 24 farm samples from the first class, 17 farm samples from the second class and 15 farm samples from the third group.

The size of the sample farms was determined by Neyman formula with stratified random sampling method (Yamane, 1967).

$$n = \frac{\sum(N_h \cdot S_h)_}{N \cdot D + \sum N_h \cdot S_h}$$

where: n = number of samples; N = farm numbers in population; N_h = number of farm in h'th class; S_h = variance of h'th class; sh = standard deviation of h'th class.

In the formula of D = d / z; d: average allowable error ratio, z: value from T table.

Error ratio for the determination of sample size was assumed 10% of the farm size and the significant degree was 95%.

After looking through all public surveys, necessary calculation was completed and data were given in table. Later, all these data we classified based on size of farms and average farm size.

Result and discussion

Land use and size in the farms surveyed

The pistachio production was very intensive in the farms surveyed and, the income obtained from farms comes mainly from pistachio production. Farmers were land lord in the surveyed pistachio farms.

The average farm size was 78.48 da and each farm consisted of 2.46 parcels. The farms surveyed had only land for the production of pistachio and there was no other type of land cultivation technique in the study area. Another study conducted in the same area showed the average sample farm size as 35.37 da (Yıldız and Karlı, 1999).

Present population and labour situation of agricultural farms in the study area

The average number of people per farm in the surveyed area was 7.43 and 56.49% of those was male and the rest was female. The average farm labour power was 6.96 EIB.

According to the average farms surveyed, the percentage of the people who don't write and read was 19.9 and rest can read and write.

Capital situation of agricultural farms in the study area

Capital is one of the important factors in agricultural production besides land and labour factor. While analysing economy of the farms, capital is generally separated as active and passive capitals and is classified based on functions.

In the study area, average land building and plant capitals were found as 2,990,980,000, 533,750,000 and 8,191,070,000 TL respectively (Table 1). There was no rectification capital for land the surveyed farms.

Table 1. Average land capital (000 TL) and percentages (%) per decare based on land size group in the surveyed farms

Land size group (da)	Land capital (1)	Building capital (2)	Plant capital (3)	Total land capital (4 = 1 + 2 + 3)	Land capital per da
1-50	1,365,200	489,580	3,091,660	4,946,440	224,838
51-151	2,737,060	647,060	6,852,940	10,237,060	144,184
151-+	5,823,330	476,000	17,866,670	24,166,000	136,277
Average of farm	2,990,980	533,750	8,191,070	11,715,800	149,284
Ratio (%)	25.53	4.56	69.91	100.00	–

The average total land capital per farm was 11,715,800,000 TL of those total land capital, percentages of the land, building and plant capitals were 25.53, 4.56 and 69.91 respectively (Table 1).

In the pistachio farms in the province of _anlıurfa, average capital per farm was found 1,902,910,000 TL. The biggest part of the farm capital was tool-machine capital with 59.22%. Besides the capital, percentages of the revolving fund of the farms and animal capital were 38.4 and 2.38 respectively (Table 2).

Table 2. Average farm capital (000 TL) and percentages (%) per decare based on land size group in the surveyed farms

Land size group (da)	Tool-machine capital (1)	Animal capital (2)	Revolving fund (3)	Total capital (4 = 1 + 2 + 3)	Land capital per da
1-50	469,380	86,625	17,500	573,505	26,068
51-151	1,573,820	17,647	279,530	1,870,997	26,352
151-+	1,672,670	10,667	2,382,800	4,066,137	22,930
Average of farm	1,126,960	45,340	730,610	1,902,910	24,247
Ratio (%)	59.22	2.38	38.40	100.00	–

Total land capital per da in the surveyed farms was decreasing while farms size were getting bigger. Capitals per da in the smallest and biggest farm sized group were 224,838,000 TL and 136,277,000 TL respectively. Average farm capital per da for land capital was determined as 149,284,000 TL. Farm capital per da for all sized farm groups was close to each other and average of it was calculated as 24,247,000 TL of those total active capital in the surveyed farms, percentages of land, building, plant, tool-machine, animal and revolving fund were 21.96, 3.92, 60.15, 8.28, 0.33 and 5.36 respectively. Total average active capital per decare (173,531,000 TL) consisted of land capital with 86.03% and farm capital with 13.97%.

Since there was no being a tenant, partnership and using bank credit in the surveyed farms, passive capital totally consisted of main capital and hence passive and main capitals were equal to each other.

Production results of agricultural farms in the study area

Main source of productivity in the surveyed farms was plant production. Almost all plant production was obtained from pistachio with a 99.02% value. The rest of the plant production was wheat (0.98%).

Animal production was not significant in farms in the study area. Animal production the requirement of family in general average animal production value per farm was 17,821,000 TL.

In the surveyed farms, gross income per farm was 1,436,259,000 TL. This gross income consisted of gross production with 96.28% and renting for accommodation with 3.72% percentage of 98.71 of gross production value was plant production and the rest (1.29%) was animal production. Gross income per decare for average farms was 18,301,000 TL and plant production value per decare was 17,394,000 TL (Table 3).

Table 3. Gross income (000 TL) and percentages (%) based on land size group in the surveyed farms

Land size group (da)	Plant production value (1)	Animal production value (2)	Gross production value (3 = 1 + 2)	Renting for accommodation (4)	Gross income (5 = 3 + 4)	Gross income per da
1-50	345,729	36,250	381,979	48,958	430,937	19,588
51-150	1,404,235	8,412	1,412,647	64,706	1,477,353	20,807
151-+	2,951,600	4,667	2,956,267	47,600	3,003,867	16,939
Average of farm	1,365,063	17,821	1,382,884	53,375	1,436,259	18,301
Ratio (%)	95.04	1.24	96.28	3.72	100.00	–

In the period of agricultural production, besides cash and expenses in kind for production, degree in the value of materials and supplies and amortization, repairing and maintenance, permanent labour and family labour potential for wages were the factors considered farm expenses in the study. The

average farm expense per farm was 866,490,000 TL of this, 58.05% was changeable expenses and 41.95% was constant expenses. Nearly all of the changeable expense with 96.72% was originated from changeable plant special production expense. Average farm expense per da was decreasing while farm size was getting bigger. And, average farm expense per decare for average farm was 11,041,000 TL (Table 4).

Table 4. Amount of enterprise expenses (000 TL) and percentages (%) based on farm size group in the study area

Land size group (da)	Special changeable expenses in the plant production (1)	Special changeable expenses in the animal production (2)	Total of changeable expenses (3 = 1 + 2)	Total of constant expenses (4)	Total of farm expenses (5 = 3 + 4)	Farm expenses per decare
1-50	119,242	33,948	153,190	240,937	394,127	17,915
51-150	441,683	7,147	448,830	424,573	873,403	12,301
151-+	1,125,100	3,667	1,128,767	490,200	1,618,967	9,130
Average of farm	486,553	16,486	503,039	363,451	866,490	11,041
Ratio (%)	56.15	1.90	58.05	41.95	100.00	–

The difference between gross income and enterprise expenses is defined as net income. Net income is a good indicator to show the success of an enterprise and also to show the economic result of it. Besides, net income is an objective indicator to compare the enterprise with each other. In the surveyed farms, net income per farm and average net income per decare were 569,769,000 and 7,260,000 TL respectively. Net income per 100 TL's active capital was 4183.7 TL. Net income per 100 TL's gross net income was 39,670.4 TL and net income per 100 TL's enterprise expenses was 65,755.0 TL.

Gross profit of an enterprise is defined as a difference between total gross production and total changeable expenses of the enterprise. Although the gross profit per farm can be determined, gross profit for each branch of production or unit in the enterprise can be calculated.

The average gross benefit per farm in the study area was 879,845,000 TL. Gross profit per decare for average farm was 11,211,000 TL and gross profit for 100 TL's changeable expenses was 1,749,059.2 TL.

One of the success indicator for the enterprises is agricultural income. In the surveyed farms, average agricultural income and average agricultural income per da was 693,332,000 and 8,834,506 TL respectively in the study area, the total family income per farm was 821,011,000 TL of this, 84.45% was agricultural income and 15.55% was non agricultural income.

Profitability is one of the criteria used for comparing economic activities of enterprises. The profitability is defined as a ratio between profit obtained a certain time period and total capital joined to production (Erku_ *et al.*, 1995). In the surveyed farms, profitability factor for enterprise was 39.67% and economic profitability factor was 4.81%.

Results

The pistachio is one of the main fruit growing in the southeastern Anatolia region. The number of pistachio trees and amount of pistachio production in this region consisted of 90 percentage of national number of trees and production. Growing of pistachio was generally done under dry and sloped land conditions. Hence, productivity was low. As a result of it grower's income became low. Since lots of land were opened to irrigation in the region by the Southeastern Anatolia Project (SAP), growing of pistachio could be done under irrigated agriculture conditions. Thus, quality and quantity of pistachio growing in the region will be increased.

The average farm size was 78.48 da and all cultivated land were dry. The number of population per farm was male and the rest was female.

The average labour potential was 6.96 EIB in the study area.

In the study area, active capital, gross production, farm expenses, net income per decare and profitability factor were 173,531,000 TL, 18,301,000 TL, 11,041,000 TL, 7,260,000 TL, 11,211,000 TL, 8,834,506 TL and 39.67%.

In the study area, the number of the family members were high and active labour potential was not used effectively. Therefore, animal production and handicraft should be encouraged to use the present labor potential effectively.

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