

Economic Evaluation of Olive Cultivation in the Rural to Improve the Economy Ofize City

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Abstract: Today, with advances in nutrition and health sciences and clarify values ??and the importance of olive oil consumption on human health, beneficial effects of this tree is obviously more valuable. Khuzestan province prone areas of olive cultivation, the cultivation of this plant in the province dating back over a thousand years ago (old olive trees that are in the wild because they confirmed this). The cities of the province, the province located in north-eastern city ize the olive crop cultivation is the cultivation of olives in a few years a wide range of other agricultural products are affordable, even competing in global markets. Study method is descriptive survey. Study sample size was selected according to simple random sampling method from villages of region, which were 200 persons from same residents and citizens of villages. Data collection tool was researcher made question naire. Number of studied villages were 10 villages which the criteria to select them was according to situational sampling. The criteria to select villages were in 200 forms: first, having relative distribution in whole Ize city so that the possibility to study would exist. Second, villages which were suitable interms of potential and capacity(economic)to cultivate olive plant. In each village, the snowball sampling method was used to select olive planting farmers. Study results show that because of In economic analysis, considering the calculation of income-cost amount and calculation of investment for olive cultivation plan for 100 hectar and 40 years analysis periods, establishing olivegarden is economic.

Key words: Olive • Economic Evaluation • Rural economy • Improve • Villages

INTRODUCTION

The olivetreeisone of the first and oldest trees. The appearance of the tree is very old times and they believe that the tree is dedicated to the Mediterranean and some Asian countries are compared to it. Date Olive is not quite clear in the course of its history of use, dating back to the Sassanid's. And this can be seen very well in the ancient city of Nishapur. Plant of olive cultivation in Iran over 6000 years, but the existing documents 900 years ago. Besides olive oil soap making products include plumbing work on Integrating olive wood and olive wood carving delicate and it is also used to own a very profitable business Is that really. Because of the high durability of the olive tree in rehabilitation is the undisputed power. This means that the natural antipathy, resistant tree known so that no human intervention during and after any mishaps appeals court has continued to grow. However, the situation is more traditional as traditional

olive orchards covered a wide area, Hedge have been marginalized and have little economic return. Now no longer limited to the traditional work methods and priorities to Olive Garden Modern conceded.

Study Method: According to the theory Chaturvedi: since the main purpose of olive cultivation is preparing fruitand oil with best quality and suitable and non competitive price, the maintaining and making usable the traditionalolive cultivation and change them into modern and today cultivating system, like other fruit gardens and vineyards are applied in such a way that olive planting orchardists are able to harvest, from each hectare of olive gardens, up to 5 times than 1 hectare vineyards, at the same condition [1].

Tombesi (1996) in the study about olive trees requirements resulted that this plant conforms with various soilsand shows more tolerance against salinity of soil rather than other fruit trees [2]. York George (1979)

about suitable place to cultivate olive believes that this plant normally is cultivated in Mediterranean and tropical areas and various parts of Africa [3]. Healthy olive trees usually produce firstling fruit from third year and in 6-7th year will produce economic fruiting and therefore, production is strictly rely on environmental conditions of plant growth, sapling quality and agricultural management [4].

Stebbins Robert (1981) describes that olive is a Mediterranean plant and it will be hurt if the temperature decreases up to -7°C during winter. Materials which are absorbed by olive tree are nitrogen, phosphorus, potash and ferrum [5]. Olive roots release materials which analyze soil and absorb its materials (potash and phosphorus), but, nitrogen is more necessary. In gardens where trees were planted with distance of 8×8 m, the amount of 70 kg pure nitrogen, 60-80 Kg phosphorus, 60-80 Kg potash is necessary [6]. Study results of Klein Maggie Blyth (1994) shows that olive can adjust with various soils and can grow even in salt soils. Olive is resistant to dehydration and the amount of required water depends on the type of olive, soil, climate of area and the amount of rainfall. In gravel and clay soils and the soil which has lower organic matter and also in areas which constantly faced with warm and dry climate, more amount of water is necessary [7]. Annual consumed water is about 5000-6000 m³ per hectare (Ha), but, it should be consider that in early years of cultivation, the need to water for plant is more and during irrigation, water should percolate about 1 m in soil [8]. Yunsu (2003) resulted that olive plant has no sensitivity to the amount of evaporation and transpiration lower than 5 mm, but, if the evaporation and transpiration achieve more than this degree the plant will need dehydration. Water management plays important role in plant growth [9].

In research of Bianchini and Francesco (1976), it is mentioned that olive plant can grow in soils which drained completely and PH is about 8.5 and have little salt and in warm and dry summers need more irrigation. Olive is high resistance against high temperatures because it has very active roots which exploring the soil deeply and laterally to achieve water [10]. In addition existence of thick cuticle on leaves, resists plant against the heat of air and strong and torrid winds. However the growth of plant root stops at the temperature higher than 35°C [11].

The speed of olive plant growth depends on the formed fruits, available water and temperature of environment. Olive is a yearly tree. Therefore, the amount of formed fruit differs from one year to another [12]. The amount of water to irrigate one hectare of olive garden changes in terms of soil type and the amount of annual

rainfall and in different soils from 6000-7500 m³ is sufficient for 1 hectare olive cultivation. In areas which the annual amount of rainfall is 400 mm, irrigation in dry months will be need only in summer [13]. Mist and hail also affect on olive significantly. Existence of mist during bloom leads to abortion and dropping of flowers. Hail storms wounds the branches and top of branches and also spreading the node disease in olive by bacteria during harvesting products leads to fruit corruption and premature dropping [14].

Olive cannot bear non drained or poor drained soils, because it leads to imbalance in 2 elements of nitrogen and potassium, particularly in commercial gardens [15]. Existence of old olive trees in Khoozestan province shows suitable environmental condition to cultivate this plant. In most areas of province, the olive plant is scattered. Local types of Bagh Malek, Ize and Dezfool which are endemic olive, can produce qualitative products by proper optimized operation. For example, local type of Bagh Malek and Ize shows higher resistance against dryness than other types [16].

In Gilan province, Roodbar city, by economic comparing of olive types, it is revealed that economic types to cultivate are: Manzanilla, Shengeh olive, yellow olive, Sovilana [17]. If in cultivating olive, all agricultural operations and conditions will be considered and perform in mechanized and wide area, increase amount of products higher than 6 ton is not unexpected. In addition, because olive tree shows high persistence in terms of age, it affects on increasing production [18]. The most important factor of final quality of olive fruit and oil is kind of variety or type. Olive oil features and its amount in fruit and the efficacy of oil extraction, all are affected by olive variety. More than 2000 varieties were estimated in world in which about 100 important commercial types are existed in Italy [19].

Study Methodology: Since any geographical research was not performed in philosophic space, will be considered based on philosophic theory, the main approach of present research, is based on realism theory or orientation to review current situation. This study methodology is descriptive-analytical and sample size were selected from villages of area by simple random sampling method (Table 1) which were 200 persons from residents and citizens of same villages. Data collection tool was questionnaire. The number of considered village's were 10 villages, which selected according to situational sampling method. The criterion to choose villages was in 2 forms: first, having relative distribution in whole Ize city so that

Table 1: Research statistical population

Name of village	Name of District	Category Name	The total number of sample	Name of village	Name of District	Category Name	The total number of sample
Haji Kamal	Dehdez	Dehdez	18	DehShikh	Susan gharbi	Susan	23
Chalisad	Dehdez	Dehdez	27	Cheshmakhatoon	Hoomasharghi	Markazi	12
Cham rihan	Margha	Markazi	19	Margha	Dehdez	Dehdez	15
NotorkiMokhtari	Hoomagharbi	Markazi	25	Helaygan	Helaygan	Markazi	24
NotorkiTahmasbi	Hoomagharbi	Markazi	22	Parchestan	Hoomasharghi	Markazi	15

Reference: Abbas MaroofNezhad,field study, 2011

Table 2: Olive harvest status based on income and spending in the study area(year2010-2011)

harvest from each tree.(Kg)	Maximum harvest per tree (Kg)	Number of trees per hectare	Minimum harvest per hectare (Kg)	Maximum Harvested per hectare (Kg)	Cost for 1Kg (tomans)	Sale 1Kg (tomans)	Net profit for the 1Kg (toman)	Minimum net profit per hectare (tomans)	Maximum net profit per hectare (tomans)
10	20	204	2040	4080	400-450	1500	1050-1100	2142000-2244000	4284000-4488000

Reference: Abbas MaroofNezhad,field study, 2010

Table 3: Costs for the construction of a 100-acre olive orchard

Initial start-up equipment costs per acre (Billion Tomans)	Buying an arable land area in square meters (Tomans)	Annual personnel costs for 3 people (Billion Tomans)	Fuel costs for pumping water with a diameter of 6 inches per year (Billion Tomans)
2/5	1750	18	6/36

Reference: Abbas MaroofNezhad,field study, 2010

the possibility to study would exist. Second, villages which were suitable in terms of potential and capacity to cultivate olive plant. In each village, the snowball sampling method was used to select olive planting farmers.

Inferential Results of Study: Economic Evaluation of the current situation (income and expenses) Olive trees are cultivated in the region:

According to collected data and statistics from 6th country general population and housing census in 2006, from whole population of Ize city which were estimated 195018 persons, 86786 persons live in villages(44/5%) in which from this population, 22168 persons are in age group of 0-14 years old and 52280 persons are between 15-64 years old and 4902 persons are at the age higher than 65 years old. Therefore according to dependence coefficient index, per every 100 persons of active population in villages of this city, 52 persons are inactive. Since among 10 province of country which had highest unemployment rate according to 6th country general population and housing census in 2006, Khoozestan province ranked in 8th place(19/30%) and therefore unemployment rate in rural areas is higher than urban areas. Ize city among cities of Khoozestan province has higher unemployment rate and so its villages, too, which this number was 27/8% in 1385. Totally, 14534 unemployed persons exist in villages of this city.

So if olive orchards in the area, according to the principles of good care and needs of particular crops and water supply...To observe the life of the plant is several hundred years old, said to be one of the most lucrative crops would dare.

It is noteworthy in this regard that (make it into olive groves Industries, drawing oils, canned food preparation, soap making, etc.), employment levels in rural areas of the city, apart from avoiding massive rural to urban migration and political benefits monitoring the rising standard of living of the people will have to like it.

According to field observation and performed estimation, every investment on olive cultivation is justifiable and would involve economic efficiency. About harvesting and revenue for olive planting orchardists in villages of this area, following information were acquired: Accordingly, the olive harvest and income for farmers in the villages of the city ize (years 2010-2011) Table 2 is as follows:

Studying and Measuring Investment on Developing Olive Cultivation in the Villages of Area: Of olive orchards in the villages of the region to invest in the construction of the city ize the 2010-2011 crop year were obtained as described in Table 3 the following information:

Costs for the Construction of a 100hectar Olive Orchard: So the total cost figure is equivalent to 2024360000 Tomans. Need to remember that for every acre

orchard of olive in between 5,000 to 6,000 cubic meters (5 to 6 million liters) of water just is. The initial cost of the equipment and set up the first column are listed in Table 3. According to the survey area and experience with water projects and the administrative costs and adjustments to the estimated price, the can only be interpreted The water supply in the region, the cost of constructing and equipping wells or pumping hectares of olive groves, the establishment of pipelines, water distribution networks in the garden of the ballast tanks (pressurized irrigation systems-drip) and construction olive garden include initial costs of land leveling (leveling partial non-strict) Pitting, buy seedlings and saplings will be planted and inputs Buying 100 hectare land: each hectare: 17500000 tomans = 1750000000 Regarding field study in some villages in region, farming land is announced between 1500-2000 tomans in m² which we consider 1750 tomans per m², averagely. Investment to build olive garden in 100 hectare (according to information from farmers of region per each ha in year) is 2500000 tomans, therefore = 250000000 tomans. Annual personnel costs (for every 3 persons) = 18000000 Total costs of annual fuels to pump water with 6 inch diameter = 6360000 tomans About irrigation and decreasing its costs, above mentioned estimation were considered without government grants and bank loan. For example, in order to mobilize and install under pressure irrigation in gardens in 2011, the government approved to provide 85% of costs in the form of grants for farmers and the 15% of rest will be offered in the form of loan by introducing them to agent banks with interest rate of 14%. Therefore total number of costs is estimated 2024360000 tomans. It should be mentioned that about 5000-6000 m³ (5-6 million liter) water are consumed for each hectare of olive gardens in year.

Revenues (In Million Tomans): In conditions which water is provided in sufficient amount and with under pressure irrigation system and regarding favorable climate conditions and natural location of region and also, observance of agricultural principles, it will be expected that in most ideal condition it can be possible to increase olive production at least to 6 ton or more per hectare. But, now after performed studies about crop harvesting and acquired revenues, following information were achieved: Regarding the price of 2011 of this crop in current studied regions which were at least 1500 tomans per 1 kilo, by wholesale, the revenue of 1 hectare olive cultivating is:

$1500 \times 6000 = 9000000$ tomans If we consider the costs of cultivating, preserving and harvesting, 30%, constantly, the net income per hectare olive cultivating will be: $9000000 \times 70\% = 6300000$ tomans And the net income of 100 hectare will be: $6300000 \times 100 = 630000000$ tomans According to this economic estimation, it is observed that olive development plan is very effective and regarding to mentioned condition, the acquired interest of this plan is completely apparent and certain.

In addition, there are other factors which result in more profitability which consist of:

- To expect increase in product up to 6 ton and more, because all developed agricultural operation and conditions were considered. In addition, by increasing the age of tree which continues several years, the product will increase [18].
- Increase in product costs in future years is imminent according to the process of similar products or global Rates.
- As it was said, olive gardens have life time more than what is expected and their value increases by passing time. But, normally, the effective life time of garden and irrigation installation and... which generally called amortization life is averagely 40 years in whole garden, because, it is obvious that the life time of tree in garden is more than several centuries, but, since infrastructure installation such as installation for irrigation, pipelines, tanks and building have limited life time which is lower than garden itself. In order to show estimated results, the effective life time of complex was considered 40 years [20].
- Social and economic impacts of this plan for this region because this issue resulted in improvement and employment and increasing people life level.

Calculating the Amortized Cost of Fixed and Current Assets to Establish Olive Garden's 100 Acres in Area:

Due to the time of planting olives on the ground until harvest a tree full period of 5 to 7 years is required (depending on the variety of olive so that the figures are imported, usually 7 years and local cultivars between 5 to 6 years, we have considered the local cultivars) As well as the scientific and commercial culture conditions should be expected to be fully met in the sixth year 6 tons per hectare of harvested olives Table 4 thus:

Table 4: Calculating the amortized cost of fixed and current assets to establish Olive Garden's 100 acres in area

Fixed capital with an interest rate of 14% in 6 years (Tomans)	Personnel costs, with interest rates of 20% for the next 6 years (Tomans)	Fuel costs... Rate of 20% for the next 6 years (Tomans)
85166667	178738560	63154291
Total: 1093559518(Tomans)		

Reference: Abbas MaroofNezhad,field study, 2011

Table 5: Pearson correlation coefficient test table to study the relationship between olive cultivation and rural economy in region

variable	Pearson correlation Coefficient	Significance level
The relationship between olive cultivation and rural economy	0/146	0/006

Reference: Abbas Maroofnezhad, field study, 2011

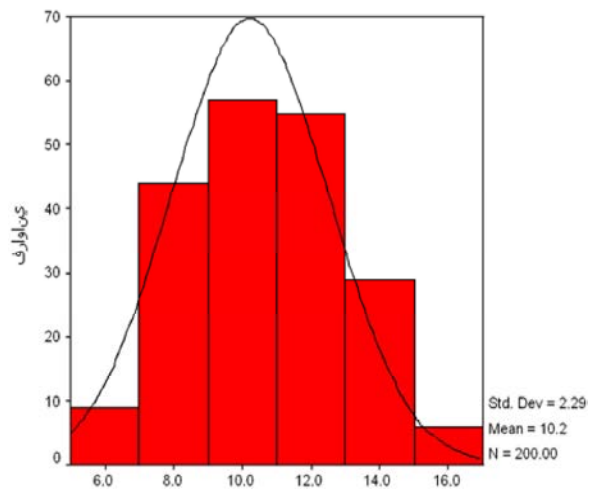
The Total Fixed Capital and running cost during the 6 months
 $3093559518 + 2000000000 + 1093559518$

$$\text{Waiting time} = \frac{\text{The Total Fixed Capital and running cost during the 6 month}}{\text{Net Income}} = \frac{3093559518}{630000000}$$

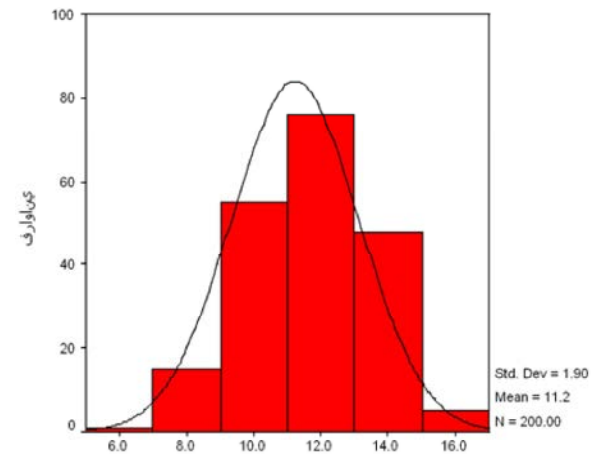
From these calculations it can be concluded that each of the 100 hectares of olive groves, after 11 years of construction, all costs and fixed capital will depreciate

Using SPSS Software to Evaluate the Relationship Between Rural Economy and Olive Cultivation in Studied Region:

In order to review the relationship between rural economy and olive cultivation development in studied region, descriptive-analytical study was done and a questionnaire consists of 22 items and SPSS software were used. Sample size was selected according to simple random sampling method among villages of region which were 200 persons from residents of the same villages. To select villages, situational sampling was used, in other word, villages were selected that were suitable in terms of potentials (human) to cultivate olive. In each village, snowball sampling method was used to select olive planting farmers. Therefore, followings were extracted which finally approved the direct relationship between rural economy and cultivation and development of olive in villages of region. In order to approve this relationship, Parametric Pearson coefficient test was used. On this basis, in table 5 and histogram 1,2, it can be observed that there is significant relationship between olive cultivation and rural economy at the level of $\alpha=0.05$ ($\text{sig}<0.05$). Therefore, there is direct relationship between improvement in rural economy condition by cultivating olive plant in villages of region [21, 22]. Also, regarding the positive amount of significance level, it can be resulted that there is positive significant relationship between



Histogram 1: Correlation coefficient by supposing that variable of rural economy is normal



Histogram 2: Correlation coefficient by supposing that variable of olive planting is normal

olive cultivation and ruraleconomy,i.e,by increasing the amount of olive cultivation, rural economy will improve and by decreasing theamount of olive cultivation rural economy will decrease [23].

Table 6: the frequency of problems of olive planting farmers in villages of studied region

The problems of olive planting farmers	frequency	percentage
Lack of government guaranteed buying of this product	30	15
Lack of transformational and complementary industries in region	48	24
Lack of farmers knowledge about scientific and commercial cultivation of this product	43	21/5
Lack of allocating long term loans with low interest for farmers to develop this product	13	6/5
Lack of allocating on time and necessary agricultural requirements (poison, fertilizer, seed,..) to olive planting farmers	14	7
Lack of enough water in region	27	13/5
Lack of providing insurance for olive product by related authorities during one cultivation term	25	12/5
Sum	200	100

Reference: Abbas Maroofnezhad, field study, 2011

About the problems of olive planting farmers in Ize city, and regarding the study population, whole issues are mentioned in table 6. The most issue with 24% (48 persons) is related to the lack of transformational and complementary industries in region (24%) and the lowest issue with 6.5% (13 persons) is related to the lack of allocating long term loans with low interest to farmers in order to develop this product.

CONCLUSION

Regarding the issues mentioned about the conditions and features of olive and its adjustment with human features of villages in Ize city, it is revealed that conditions of region is suitable to cultivate this product in terms of condition. Economically, by considering performed estimation and field study of statistical population, economic justification to cultivate and develop this product, was confirmed. So, according to achieved results, following recommendations were presented:

- Marketing and public relation: the most important issue in marketing and public relations in the field of global economy is the issue of mutual relationship with other countries. There is a theory in economy which says: advertising is half of business and merchandize. So, our country should have representative in all fields of agriculture, internationally and our agriculture products will advertise all over the world and motivation to buy should be created in buyers and their orders will be received and collected. Even, when we cannot produce one product, we should promise for purchase order with producer countries and perform as dealer, like the job was done by UEA, China, Turkey,...
- In order to make active and dynamic urban and rural economy of every country, the most important factor

is the attention of country government and governors to economy because any work cannot be done without pay attention to economy.

- Performing research projects and finding location plans rely on precise climate studies, agrology... in order to find suitable places to develop olive gardens.
- Preparing experimental and exhibit farms to complement performed studies and encouraging farmers to cultivate olive under the supervision of investigative centers.
- Using suitable and compatible variety with climate condition of region and types such as Conservallia and local types of Bagh Malek and Dezfool.

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