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Pistachio production: Iran vs the world

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Abstract. Rafsanjan is one of the significant townships of Kerman province in Iran for pistachio production.. In 2006, Iran had a share of 74% of the pistachio world area plantation. In 2006, the area of pistachio plantation in Kerman province was 46% of total world pistachio orchards, and that of Rafsanjan was about 18.5%. In 2006 the area of pistachio bearing plantation in USA was about 7.15% of the world pistachio area. The share of Iran and USA in pistachio production in 2006, was 40% and 21% respectively. In USA the total investment for the establishment and maintenance of one hectare of pistachio orchard to reach economic production is about 1.25 times of the expenses in Iran. Annual operating cost of bearing pistachio orchard per hectare in USA is about 2.83 times the cost in Iran. In 2006, Iran, as the most important pistachio exporter, and USA, as the second exporter, had a share of 60% and 16% respectively of the world pistachio exports.

Keywords. Rafsanjan – Pistachio – Production – Expenses – Plantation – USA – Exporter.

Production de pistaches : l'Iran dans le monde

Résumé. Rafsanjan est l'une des zones significatives de la province de Kerman en Iran pour la production de pistaches dans le monde. En 2006, la part de l'Iran était de 74% de la plantation mondiale pour ce secteur. En 2006, la surface de plantation de pistachiers dans la province de Kerman était de 46% et dans Rafsanjan elle était d'environ 18,5% des vergers totaux de pistachiers du monde. En 2006 les plantations de pistachiers aux Etats-Unis représentaient environ 7,15% de la surface mondiale. La part de l'Iran et des Etats-Unis dans la production de pistaches en 2006 était de 40% et 21% respectivement. L'investissement total des Etats-Unis pour l'établissement et l'entretien d'un hectare de verger de pistachiers pour atteindre une production économique est d'environ 1,25 fois les dépenses en Iran. Les frais d'exploitation annuels pour soutenir le verger de pistachiers par hectare aux Etats-Unis sont 2,83 fois ceux de l'Iran. En 2006, l'Iran comme exportateur de pistaches le plus important et les Etats-Unis comme deuxième exportateur, ont eu une part de 60% et de 16% respectivement dans le monde.

Mots clés. Rafsanjan – Pistachier – Iran – Production – Dépenses – Plantation – Etats-Unis – Exportateur.

I – Introduction

Pistachio has low saturated fat and can be a good source for monounsaturated fatty acids. Daily consumption of about 57 grams of pistachio can decrease blood pressure in the elderly. Pistachio powder is used in confectionaries and its green skin is used for feeding cows, sheep and poultry. Pistachio oil is used in producing cosmetics, different dishes and medicines. Pistachio is a plant which has been cultivated and raised in different regions of Iran, Turkmenistan and Afghanistan. Natural forests of wild pistachio trees are still seen in different areas in North-east of Iran and Afghanistan. It is supposed that pistachio tree has been cultivated for 3 to 4 thousand years. The main habitat of pistachio is the Middle East, especially Iran. Rafsanjan is one of the significant townships of Kerman province for Pistachio production in the world. Rafsanjan's climate is favorable for pistachio cultivating. Extreme sun radiation and nutritious soil in the region are elements that make Iran pistachio exceptional in comparison to other kinds in the world especially in flavor. Pistachio, in spite of having nutritious values, is adaptable to any unsuitable conditions such as salinity of water and soil, dry weather, and it is considered as a species of favorable trees for desert regions. If adequately planned and

managed, pistachio cultivation can be suggested to prevent soil erosion, desert development, and to provide job opportunities and a profitable investment. It can be said that Iran pistachio quality is unique all over the world. At present in certain favorable regions such as California, Greece, Italy, Syria and Turkey, pistachio is also produced because of its economical significance. In the field of production, quality and export of pistachio, Iran still ranks first. During the years 1980 to 1994 the rate of consumption growth of all kind of nut in Europe has been as follows: hazelnut 60%, pecan 21%, Australian hazelnut 66%, other kind of nuts 71%, while consumption of walnut has decreased up to 38% and consumption of pistachio has increased to 140%.

II – Result and discussion

1. The area of pistachio plantation

A. World Plantation

The area of pistachio plantation within last 11 years has increased from 373.4 thousand hectares in 1996 to 594.9 thousand hectares in 2006.

B. The area of pistachio plantation in Iran

Pistachio plantation in Iran has increased from 231.9 thousand hectares in 1996 to 440 thousand hectares in 2006. Iran had 73.9% of the total pistachio orchard area of the world in 2004

C. The area of pistachio plantation in Kerman (Rafsanjan)

Pistachio plantation in Kerman in 2006 was 273 thousand hectares which is equal 46% of the world pistachio plantation area.

D. The area of pistachio plantation in USA

Pistachio plantation in USA has increased from 26 thousand hectares in 1996 to 42.53 thousand hectares in 2006.

2. World situation of pistachio production

Pistachio production within last 11 years has increased from 436 thousand Tm in 1996 to 576 thousand Tm in 2006. Pistachio production and its trade are considered as exclusive. A few countries in the world produce it. The amount of pistachio in 1961 in the world was 17 thousand Tm which was produced in six countries: Iran, USA, Syria, Turkey, Greece and Italy. In 1996, pistachio production in these six countries has increased from 399 thousand Tm to 533 Tm in 2006. The share of Iran and USA in 2004 production was 40% and 21% respectively. About 92.6% of pistachio production has been produced in six countries: Iran, USA, Turkey, Syria, Greece and Italy. If we consider this total amount, the share of these countries is about 40, 21, 10.4, 19, 1.7 and 0.5 percent respectively.

A. Pistachio production in Iran

Iran is the largest pistachio producer in the world. Total pistachio harvest in 2006 in Iran has been 229 thousand Tm. From this amount 99 thousand Tm belong to Rafsanjan with a share of 43.2 % in Iran and 17 % in the world.

B. Pistachio production in Kerman

Pistachio production in Kerman province in 1990 has been increased of 112.8 thousand Tm to 273 thousand Tm in 2006. The average of pistachio production in Iran during 1996 to 2006 years has been about 233.4 thousand Tm. From this amount 62 percent, equal to 145 thousand Tm has been produced in Kerman. Considering a yield of about 0.9 Tm per hectare of all 110 thousand hectares of Rafsanjan's pistachio plantation area in 2006, it can be said that pistachio production in Rafsanjan in the same year was 99 thousand Tm. Thus, about 43.1 % of the Iranian pistachio production (229.6 thousand hectares) in 2006 belongs to Rafsanjan and this equal 17% of total world pistachio production.

C. Pistachio production in USA

Pistachio production in USA was 48 thousand Tm in 1996 and it has increased to 122 thousand Tm in 2006. So the share of USA in 2006 reached to 21% of the total pistachio production in the world.

3. Expenses per hectare to establish a pistachio orchard (until the 8 year after plantation)

The total investment for establishment depends on the irrigation system, number of trees per hectare, labor cost and maintenance. This data will shown in an example for USA and Iran in 2006.

A. Iran

The total investment for establishment and maintenance of one hectare of pistachio orchard to reach economic production has estimated at 26591 \$/ha

B. USA

According to studies university of California in San Joaquin Valley in 2006, the total investment for the above-mentioned items is estimated at 33223 \$/ha which is a bout 1.25 times the cost in Iran.

4. Annual operating cost of bearing pistachio orchard per hectare

The annual current cost of bearing a pistachio orchard is different according to irrigation system, labor cost, plantation system, trees per hectare, etc. In this report we compare these costs in California and Iran especially in Rafsanjan plain.

A. Iran – Rafsanjan

The annual cost of one hectare of orchard 15 years old including animal and chemical fertilizers, pest and disease control, water supply, labor and harvesting was 1903 \$/hectare in 2006. It means that, if the average yield of dry pistachio is 1.1 Tm per hectare, the operating cost per one kilogram of pistachio is 1.7 \$.

B. USA

According to project evaluation in the San Joaquin Valley California in 2006, The annual operating cost per hectare is estimated in 5386 \$. And if the average production per hectare is estimated at 3 Tm, the cost for producing one kilogram of dry pistachio will be 1.8 \$. Therefore, the annual operating cost per hectare of a bearing pistachio orchard in USA is about 2.83 times than the cost in Iran.

5. Main exporters

The most important exporters in the world are Iran, USA, Greece, Italy, Syria and Turkey. Iran is considered as the greatest exporter, with a share of about 53.2% in the world and USA is the second with a share of 22% of total export in 2005. Pistachio production in Turkey in 2005 had a share of 0.3% in the world.

6. Pistachio export from Iran

Export trend in Iran shows a considerable growth after the Islamic Revolution. In 1996, about 66.7% of the world pistachio exports belonged to Iran. But due to freezing weather and that other competitive countries such as USA have entered the export market, this amount decreased to 53.2% in 2006. Main countries which import Iran's pistachio are European countries, CIS countries, Japan, Latin American, etc. Iran pistachio is exported from two-economical structures: private and cooperatives. The Rafsanjan Pistachio Producers Cooperative (R.P.P.C) exports 50% of pistachio and the other 50% is exported by private agents. Foreign exchange gained from pistachio export in 1990 was 259.4 million \$ and in 2003 it was 679.9 million \$; this amount has been increased to 1 Milliard \$ in 2006.

7. Iran pistachio export destinations over the last 10 years

The main importers in this recent decade have been Germany, Italy, France, Belgium, England, Holland, Spain, Hungary, Canada, India, China, Syria, Mexico, Luxemburg, Russia, UAE, Australia, and Hong Kong. Germany is considered the entry terminal for Iran pistachio, as in this country pistachio is packed and distributed to other European Countries. In 2001, UAE has been another terminal for pistachio distribution. In 1997, after Germany, Japan was the second importer of Iranian pistachio. In 2003, Hong Kong and Russia have had the second and third rank of Iranian pistachio importers. Within 1994-2003, about 71% of pistachio market share has been Europe and about 78% of Iran pistachio has been distributed to other European countries via Germany. The decrease of exporting pistachio to Europe was not due to lack of success but because of the manner of managing pistachio export to other countries. Pistachio cooperatives and private sectors have tried to directly export to destination countries.

8. USA pistachio export

USA is the second largest exporter of pistachio in the world behind Iran. American pistachio export was 11 thousand Tm in 1996 and it has grown to 57 thousand Tm in 2006. It means that recent decade USA export has become 5.1 times.

9. Five main pistachio importers of the world

In 2005, the five main pistachio importers in the world were China, Germany, Luxemburg, Spain, and Italy. The amount of pistachio imported from Iran was 83, 63.09, 13, 35.4 and 40.5% and from USA was 13.07, 7.65, 70.03, 13.34, and 28.37% respectively. At present CIS markets as well as Middle East countries such as Iraq, Afghanistan, Pakistan, Turkey, UAE, and India are located instead of European market, although imports of pistachio from Iran in some of the European countries such as Italy, Belgium, England, Netherlands and Spain have been increased. At present about 35% of pistachio is sent to Middle East and CIS countries. In 2005, total pistachio imports of Bulgaria, Pakistan, Mexico, Ukraine, Saudi Arabia, Romania, China, Kyrgyzstan, India, Brazil, and Germany was 100, 98.3, 98.2, 95, 90, 87.3, 82.8, 72.15, 70.21, 67.5 and 63.1 percent from Iran and 0, 0, 1.75, 0, 0, 4.62, 13.07, 0, 0, 0 and 7.65 percent from USA respectively. In 2005, Bulgaria market was captured by Iran.

10. New markets for Iran's pistachio

Bulgaria, Pakistan, Mexico, Ukraine, Saudi Arabia, Romania, China, Kyrgyzstan, Brazil, Germany, Australia, Spain, India, Syria, Mexico, Russia, UAE, Kazakhstan,

III – Conclusions

In 2006, Iran had 440 thousand hectares, which meant a share of about 74% of the world area plantation (595 thousand hectares). In 2006, the area of pistachio plantation in Kerman province was 46% and in Rafsanjan was about 18.5% of the total world pistachio orchards. The area of pistachio bearing plantation in USA in 2006 was about 7.15% in the world. Total world pistachio production in 2006 was about 576 thousand Tm, from which 17% belongs to Rafsanjan. The share of Iran and the USA in pistachio production in 2006, was 40% and 21% respectively.

In 2006, the total investment for the establishment and maintenance of one hectare of pistachio orchard to reach economic production was estimated at 26591 \$/ha in Iran and 33223 \$/acre in USA, which is about 1.25 times the expenses in Iran. In the same year, the annual cost of one hectare of orchard 15 years old including animal and chemical fertilizers, pest and disease control, water supply, labor and harvesting was 1903 \$/hectare in Iran and was estimated in 5386 \$/hectare in USA.

Iran as the most important pistachio exporter has a share of 53.2%, in the world. The USA is considered the second exporter with a share of 22%. Among European countries, Germany, England and France are stable importers of Iran's pistachio, whereas Luxemburg, Italy and Holland are stable importers of USA's pistachio. Before 2000 China imported pistachio from USA, and after that date it import pistachio from Iran. It seems that due to hygienic consideration, Europe has decreased imports from Iran, but countries such as China, Hong Kong, Australia, India, Syria, Mexico have increased their pistachio imports from Iran

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