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# AGRO-INDUSTRY

# IN IRAN

FLANDERS INVESTMENT & TRADE MARKET SURVEY



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**AGRO-INDUSTRY IN IRAN**

Pistachio Market

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## 2. THE PISTACHIO INDUSTRY

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The pistachio industry in Iran is made up of three main sectors: farming, post-harvest processing, and trade; each is explained in more detail below:

### 2.1 FARMING

Due to the botanical characteristics of the pistachio tree, there are limited geographical locations on the planet with favorable climatic conditions for economically-viable pistachio production. Pistachios have been cultivated in Iran for thousands of years. Commercial cultivation of pistachios in Iran started expanding about one hundred years ago. The upward trend of production has continued ever since. At present, around 150.000 farmers harvest the crop from about 290.000 hectares of pistachio orchards nationwide; more than 70% of the production is coming from small-scale producers (those who manage orchards of 2 hectares or less). Currently, annual pistachio production capacity in an "on" year is up to 280.000 metric tons. This is from orchards in Kerman, Yazd, Khorasan, Fars, Semnan, Markazi and some other provinces. All pistachio orchards in Iran are hand-harvested. Average annual yield of bearing Iranian pistachio orchards is 800 kg per hectare. Individual farms may produce from 300 to 3000 kg per hectare.

### 2.2 POST HARVEST PROCESSING

The pistachio processing industry in Iran is gradually moving from traditional, low-capacity, home or farm based, sun-drying units towards specialized, industrial high-capacity plants utilizing hot forced air for drying. Traditionally, processing plants acted as service providers to the growers. Therefore, each grower retained possession of his/her produce after processing. However, with the advent of new industrial processing plants and the rising costs of processing in small scale units, new collective processing agreements are becoming more popular. In such schemes, the processing unit may even make the decisions about the selling of the processed pistachios on behalf of the growers.

Currently, the largest industrial pistachio processing plant in the country has a capacity of 350 tons of fresh pistachios per day. Although the number of high-capacity plants is small, the total number of mechanized processing units is growing every year.

### 2.3 TRADE

Most pistachio exports are in bulk: raw dried pistachios, roasted pistachios, pistachio kernels, and green peeled pistachio kernels. The main consumer markets for Iranian pistachios are Germany, Italy, Spain, Poland, India, Iraq, South Korea, UAE, Armenia and Russia.



### 3. CHALLENGES AND OPPORTUNITIES

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#### 3.1 WATER SHORTAGE & OUTDATED IRRIGATION

All pistachio orchards in Iran are hand-harvested. Average annual yield of bearing Iranian pistachio orchards is 800 kg per hectare. Individual farms may produce from 300 to 3000 kg per hectare. The majority of pistachio orchards in Iran are operated in accordance with traditional knowledge and methods. These orchards have a lower yield than the modern Californian orchards that use the latest knowhow and technology. Since in Iranian orchards, all farm activities are heavily dependent on manual labour, production costs are growing at a fast pace (on par with the price of labour as influenced by the rate of inflation). In addition, most of the pistachio orchards in Iran are located in arid regions and are faced with persistent and severe water shortages, while outdated and wasteful irrigation tools and practices continue to be in wide usage. The gradual decrease in the yield of pistachio orchards in Iran is mainly caused by a severe decrease in the quantity and quality of irrigation water coming from deep wells. This malaise results from over-issuance of government permits to bore deep wells in a diminishing aquifer. The problem is exasperated by the breaking up of the orchards to smaller units resulting from inheritance laws.

It is hoped that new plantings in areas with abundant water resources by corporations rather than individuals would, in future, open the way for the establishment of modern, industrial-scale orchards. The IPA (Iran Pistachio Association) is planning a pilot project to use the latest knowhow and knowledge from local and foreign experts to establish a modern, efficient and cost-effective pistachio orchard. Various locations in Iran are being analyzed for their suitability of climate and soil in addition to good water quality and availability. This pilot project would be on a scale of more than 1.000 hectares, so as to make the investments in the necessary greenhouse space and machine harvesting tools an economically viable proposition.

Due to dwindling underground water resources in Kerman province because of overuse of this valuable resource, pistachio production in this province - which accounts for the majority of production is on the decline. This will eventually lead to a serious decline of overall Iranian pistachio production over the next few years, if alternative areas are not brought under pistachio production. This requires identifying new suitable areas for new pistachio orchards, as well as moving towards a more industrial and mechanized type of production to increase yield and conserve value natural resources.



### 3.2 MINIMIZING AFLATOXIN CONTAMINATION RISKS

Aflatoxins are naturally occurring mycotoxins (the toxic secondary metabolite of molds) that are produced by some strains of *Aspergillus flavus* and *Aspergillus parasiticus*. Aflatoxins are toxic and among the most carcinogenic substances known.

In pistachios, aflatoxin mostly occurs on the farms just prior to harvest. Therefore, they can best be avoided by timely and speedy harvest. The Iranian pistachio industry is attempting to minimize the risk of aflatoxin contamination through the following measures:

- observing GAP in the orchards,
- timely and speedy harvest,
- industrial scale fresh pistachio processing utilizing high capacity forced-hot-air dryers,
- use of water floatation tanks to remove high-risk pistachios from the product stream,
- manual sorting of dried pistachios to remove nuts with shell or kernel defects,
- observing GMP in fresh and dry processing plants,
- observing sanitary guidelines during warehousing and transport,
- supporting research projects for understanding the nature and cause of aflatoxin contamination in different sections of the pistachio industry and finding ways for its elimination.

Sources:

- Iran Pistachio Association
- Trade Promotion Organization of Iran
- Financial Tribune

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