

## **Constraints in Production and Marketing of Iran's Pistachio and the Policies Concerned: An Application of the Garret Ranking Technique**

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**Abstract:** Iran stands first both in production and export of Pistachio in the world and earns sizable income from its export. Despite such a position in global market, Farmers and traders in the country are suffering from a wide kind of bottlenecks. This study aimed to define the critical constraints and to suggest the best way to reduce them. Necessary data were collected through personal interview of randomly selected sample of farmers and exporters/ processors. One hundred farmers and ten processor/ exporters interviewed in Kerman province in the crop year 2007-08. The Garret ranking technique adopted to identify the constraints. Results indicated that; Inadequate irrigation, Unsuitable domestic market structure accompanied with low received prices and price fluctuations and Lack of appropriate chemical fertilizers were the major problems from the farmers point of view, while Aflatoxin contamination standards, Changing government policies toward export and Irregular supply of produce to the market during the year were the sole hinderances from the traders/exports point of view.

**Key words:** Garret ranking technique % Constrains % Score % Contract system

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### **INTRODUCTION**

Due to its high nutritious value and favorable taste, planting pistachio trees has become common in the world. However, Iran is the world's largest producer and exporter in pistachio industry accounted for 46.00, 74.00, 56.00 and 61.00 percent of world production, cultivation area, export and export value, respectively (FAO, 2008). Iranian pistachio is considered the best in the world in terms of its taste and flavor. Pistachio consumption is considered as pleasant and very delicious. In fact pistachio product, in addition to economic respect due to its food value and warehousing ability, is known as a commercial product and on the other hand pistachio as an exportable and currency earning output has a special importance to the agricultural output of Iran and contains a large portion of non-petroleum exportation.

Pistachio is cultivated in Iranian dry regions with low rainfall. Such areas are not suitable to produce other crops economically. Currently Pistachio export earnings stand next to petroleum. Around 10 percent of non-petroleum export value is realized from pistachio. Pistachio is cultivated in 380,000 Hectares in Iran with 70 percent bearing and 30 percent nonbearing gardens and production being around 300,000 metric tonnes/year.

Recently the productivity of Pistachio orchards has declined and resulted to an economically non-viable situation. Also the share of Iran in Global Market has decreased significantly (Sedaghat, 2006). Here on, there are some researches already completed by researcher on Pistachio:

Sedaghat (2006) did a study entitled "Economics of Pistachio industry in Iran's tropics " The results showed that production of three major varieties of pistachio was not economically viable in long run, but viable in short run. However, the servicing and export terminals are economically viable both in short run and long run. Sedaghat (2007) did a study entitled "Spatial price integration for Pistachio in Iran's tropics " The price series used for comparison were Iran's producer and export prices, Iran and USA export prices and Iran and USA producer prices. Results revealed that none of the price series are co-integrated. This shows that the LOP can not be hold and so the prices are not moving together in long run. Sedaghat (2008) did a study entitled "Enhancing sustainable irrigation for Pistachio farms in Iran's tropics" The results revealed that 70 percent of farmers had agricultural water limitation, 82 percent were utilizing non-quality water with salinity degree above 5 Milimoss. For 94 percent of the sample farms, water were extracted from

Deep-bore wells and lastly 97 percent of farms were managing under traditional irrigation systems, popularly called flood irrigation. Sedaghat (2009) did a study entitled "A Comparative Study on Pistachio Marketing in Iran's Tropics" results showed that although none of the channels are economically efficient, but Pistachio cooperative channels are relatively more efficient than private channels. Sedaghat (2010) did a study entitled "Export Growth and Export Competitiveness of Iran's Pistachio" results showed that the growth rate of area planted was 5.12 percent and significant against non significant values for production, yield and export quantity and export value.

The main objective of this paper is to define the critical constraints from producers / exporters' points of views in Pistachio industry.

## MATERIALS AND METHODS

**Data Sources and Sampling Design:** Kerman province is the main place of Pistachio gardens in Iran .According to the data from Iran's Agriculture Ministry, 67.4, 73.5 and 46.5 percent of total area planted, bearing gardens and production of the whole country were in this province .Rafsanjan city in Kerman province was purposively selected for this study. Rafsanjan is the city accounts for 39.42, 43.35 and 49.14 percent of total area planted, bearing gardens and production in Kerman province (Agriculture ministry, 2008). Also, most of the processing industries and exporters are operating from Rafsanjan.

For the selection of sample for the study, a two stage cluster random sampling technique was adopted. In the first stage totally 40 villages (25 percent of total number of villages in the city) were selected randomly. In the second stage totally 100 sample farmers were selected randomly based on the population of each village. In addition to the sample farmers, 10 processors – cum- exporters were randomly selected in the crop year 2007-08.

**Research Model:** To find out the problems in production, processing and marketing of Pistachio the Garret ranking technique was adopted (Garret and Woodworth, 1969 and Kathiravan *et al.* 1999). The respondents were asked to rank the factors given. The orders of merit, assigned by the respondents were converted into ranks using the following formula:

**Percent Position of Each Rank =  $100 (R_{ij} - 0.5) / N_j(13)$**

$R_{ij}$  = Rank given for  $i_{th}$  factor by  $j_{th}$  individual

$N_j$  = Number of factors ranked by  $j_{th}$  individual

The percentage position of each rank was then converted into scores referring to table given by Garret and Woodworth (1969). For each factor, the scores of individual respondents were added together and divided by the total number of respondents for whom scores were added. These mean scores for all the factors were arranged in descending order, ranks were given and the most limiting factors were identified.

## RESULTS AND DISCUSSION

**Major Problems Ranked by Farmers:** The results of ranking the factors considered by the producers are presented in Table 1. Farmers ranked all the 14 factors and they classified them into 9 categories. Some of the factors have been given the same rank by the producers. The score variation was very low varying from 72 to 85. The results for ranking the factors considered by the producers demonstrated that, lack of adequate irrigation water received rank I, unsuitable domestic market structure, inter and intra year fluctuations of prices and low price of pistachio in the market all together received rank II. Lack of appropriate chemical fertilizers received rank III.

Lack of water and water salinity, were a main challenge for farmers. On the one side the water shortage and salinity caused reduction in Orchard productivity and on the other side it entailed a high cost of water pumping and all the allied costs to the farmers.

Domestic market structure lead to a low output price, with high inter and intra year fluctuation. Despite an increasing trend of producer prices in recent years, still the prices are not sufficient to cover all the costs. Besides, the prices are not following a realistic pattern both within and between the successive years, so they prevent farmers from a realistic expectation of their revenue which negatively affects their farming decision.

Chemical fertilizers were distributed among farmers through the government channels since a long time. Farmers were paying a high amount on this item due to un-timely availability through government channels. Even though government was paying a huge amount of subsidy on chemical fertilizers, but only some of producers could receive this subsidy. The black market generated through some invisible hands, mainly government officers working in the agricultural services centers. They had been connected to some private shopkeepers and had drawn the subsidized inputs out of official system. As a result, farmers were compelled to buy such inputs from the black market that entailed them high costs. Many farmers could not afford to buy and use such inputs.

Table 1: Constraints faced by Pistachio producers in Iran

Sl.NO.	Constraints	Score given	Rank
1	Lack of appropriate agricultural machinery	77	7
2	Inadequate irrigation	85	1*
3	Lack of appropriate Pesticides	79	5
4	Lack of appropriate chemical fertilizers	81	3*
5	Lack of extensional and advisory services	77	7
6	Inadequate credits for production	80	4
7	Inadequacy of processing plants	76	8
8	Unsuitable domestic market structure	83	2*
9	Inter and intra year price fluctuations	83	2*
10	Low price of pistachio in the market	83	2*
11	High discount rate in domestic market undertaken by buyers	78	6
12	Delaying in Payment by buyers	76	8
13	High cost of production	80	4
14	Others	72	9

Note: \* indicates the most important problems

Table 2: Constraints faced by Pistachio traders in Iran

Sl.NO.	Constraints	Score given	Rank
1	Lack of extensional services to the producers and processors and low quality of final product	---	Not Ranked
2	Lack of modern pistachio processing plants	25	11
3	Poor domestic market structure	52	4
4	World market structure	---	Not Ranked
5	Inter and intra year fluctuation of prices in world market	---	Not Ranked
6	High discount rate in domestic market	49	6
7	High and Increasing cost of production	24	12
8	Low productivity ( yield per hectare )	48	7
9	Non availability of credit to marketing agencies	51	5
10	Low and constant trend of prices in world market	---	Not Ranked
11	Inappropriate and changing Governmental policies governing exports	58	2*
12	In adequate transportation system	33	9
13	Inadequacy of packaging industries	29	10
14	Irregular supply of product to market during the year	56	3*
15	Aflatoxin contamination	65	1*
16	Poor quality of product in international market	42	8
17	Others	---	Not Ranked

Note: \* indicates the most important problems

**Major Problems Ranked by Traders:** The results for ranking the factors considered by the traders demonstrated in Table 2. Traders ranked only 12 factors out of the 17 identified ones and they sorted them into 12 distinct classes. No factor has been given the same score by the traders. The score variation was comparatively high varying from 24 to 65. The results for ranking the factors considered by the traders demonstrated that, Aflatoxin contamination, inappropriate and changing governmental policies in export and irregular supply of product to market received ranks I, II and III, respectively.

The Aflatoxin pollution was reported as the major reason for rejecting the produce shipments in recent years. There is a possibility that Pistachio is polluted in low quantities, but unfortunately there are certain political

pressures by the competing countries on Iran's exports in this case. Unless the political problems are solved, this will remain a major problem for the exporters. It is also possible for the Producers, processors and exporters to reduce Aflatoxin contamination by practicing the modern and proper technologies mostly available in the country.

The ceaseless changes in governmental policies toward agricultural sector were reported by the exporters as another problem faced. The agriculture sector as a main source of income generation as well as employment in the country needs a long term consistent and stable policy. Pricing policies, providing the needed services and technologies, subsidy mechanism, advisory services, extension and so on, were all criticized not only by the farmers and exporters, but also by agricultural economists in recent years.

The third major problem of exporters was the irregular supply of Pistachio to the market during the year. As per exporters, to have a permanent and proper contract with the major importers abroad, they need to receive the same quantities by domestic market contracts. Delay on sending shipments on time created a main problem of exporters in some cases. The irregular supply of produce during the year is not solvable, unless similar contract agreements are signed between producers and local exporters/ wholesalers.

**Conclusion and Policy Implication:** Despite a good position in world pistachio production and trade, Iran's share of global production, productivity and export has declined during the last decade. Productivity of Pistachio gardens is low compared to other competing countries. Cost of production has increased significantly in recent years. The prices received by the farmers do not compensate for the effect of low productivity and increasing production cost. As a result, profitability of production has come down and it may further decline if the current situation continues (Sedaghat, 2002 and Sedaghat, 2006).

As discussed previously, both farmers and exporters are facing with sole problems, unless the above problems getting solve the betterment of situation will not be expected. Experience achieved over the last three decade reveals that, government interference in Pistachio market was not efficient.

May be establishing farmers/exporters institutions/NGOs reduce the problems considered. Precision farming with the use of new technologies and contract farming complemented with an efficient insurance system are expected to enhance the productivity and also to reduce the cost of production which results on a better profitability of orchards (Charles and Andrew, 2001). Due to the need for new laws, regulations as well as new policy prospective, it is suggested that government takes the responsibility of policy making than a direct interfering in the production and marketing system.

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