

Constraints in production and marketing of pistachio in Iran and concerned policies

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Abstract

Pistachio is one of the most important agricultural crop in Iran. The country earns sizable income from pistachio export. To be globally competitive, the production and trade of pistachio must be economically viable especially in long run. This paper aims to analyze the constraints in production and marketing of Pistachio in Iran. 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 and Tehran city (Iran), in the crop year 2003-04. The Garret ranking technique was adopted to identify the constraints. Farmers and traders were asked to rank the problems considered. Farmers ranked 14 problems into 9 different categories. Differences between scores adopted for different categories were low and they varied from 74 to 87, indicating that all the problems are important from producer's point of views. On the other hand, traders ranked only 12 given problems among 17. They classified each and every problem into a distinct category. Score variations were comparatively high varying from 19 to 60 indicating that there is significant difference between different categories of problems. The results of tabular analysis of export data showed that pistachio industry of Iran was facing a negative growth rate of production, productivity, export quantity and export value during the period 1991-2002.

Key words: Pistachio, Iran, export, production problems, productivity, economics

Introduction

Pistachio is cultivated in dry areas of Iran, where precipitation is quite low and no other crop could be produced economically. Currently pistachio export earnings stand next to petroleum. Around 10 percent of non-petroleum export value is being realized from pistachio. The average size of pistachio gardens is around 2.5 hectares. Pistachio cultivation alone provides employment to over 7, 60,000 people. Considering the people who were employed in pistachio processing, marketing and export, the employment adds up to over one million. Hence, pistachio is a crop of great importance in Iran's economy (Sedaghat, 2002, 2006). According to the Agricultural Ministry Data (2002), pistachio is cultivated in 3,80,000 hectares in Iran, with 70 percent bearing and 30 percent nonbearing gardens. Pistachio production was 3,20,000 metric tones, with the yield bearing 1.2 tones per hectare in bearing gardens. Foreign exchange earnings from the export of pistachio have been around 350 million US dollars per year during the last five years. Iran stands first both in production and export of pistachio in the world. According to the data from FAOSTAT Information Bank, Iran accounted for 52.89, 58.00, 64.79 and 65.84 percent of world production, cultivation area, export and export value, respectively during the last decade (FAO, 2003).

To be globally competitive, the viability of production and processing should be attained in long run. Otherwise loosing the current position is expected in future. This study aimed at identifying the main obstacles and bottlenecks faced by producers and exporters of pistachio in Iran. Also the feasibility of a contract system was assessed as an alternative system, to reduce the current problems.

Methods and materials

Study area: Pistachio is produced in different provinces, but Kerman is the major province of pistachio gardens in Iran (with 270,000 hectares, accounting for 71 percent of total area under pistachio across the country). Kerman province is located in south east of Iran bounded by Fars, Yazd, Hormozgan, Sistan and Khorasan provinces. The climate in this province tends to be very warm in summers and very cold in winters. The temperature ranges between -10°C to and 48°C. The average rainfall is around 150 mm per year. Rafsanjan city in Kerman province was purposefully selected for this study. More than 50 percent of pistachio gardens are located in this area. Moreover, most of the processing industries and exporters are operating from Rafsanjan. Iran's Pistachio Research Institute and Pistachio Producer's Cooperative are also located in Rafsanjan. Thus, this city is well known all over the world as the most important region of pistachio production.

Database: Rafsanjan consists of five districts, viz., Kabootarkhan, Noogh, Anar, Koshkoeya and Hoome. By using a multistage random sampling technique, 20 sample farmers were chosen from each district. The sample spread across the three major varieties of pistachio in the province (Fendoghi, Kaleghoochi and Akbari). Also, a sample of 10 main traders/exporters was interviewed for the purpose of the study. Farmers and traders were questioned about their challenging hindrances and were asked to rank the problems.

Methods of analysis: Tabular analysis was used to identify the growth rates of production, harvested area, yield/hectare, export quantity and export value during the period 1991-2002.

Garret's ranking technique (Garret and Woodworth, 1969) was adopted to analyze the factors considered. The respondents were asked to rank the factors. The orders of merit, assigned by the respondents were converted into ranks using the following formula:

$$\text{Percent position of each rank} = 100 (R_{ij} - 0.5) / N_j$$

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 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

Growth rate of production, harvested area, productivity and export in Iran compared to other major pistachio producing countries:

The mean growth rate calculated for the first 2 years and the last two years during 1991-2002, are presented in Table 1. The reason to use 2 years average is the alternate bearing habit in pistachio. The growth rates for all the variables, except harvested area, were negative in the case of Iran. The growth rates of production, productivity and harvested area were negative but that of export and export value were positive in the case of Turkey. The growth rates were positive for all the variables in the case of USA. As already mentioned, Iran's situation for the above mentioned variables is not satisfactory. It is worth mentioning here that if the current situation remain consistent, the future of pistachio industry will become worse.

Table 1. Growth rates of pistachio production, harvested area, yield and export for major producing countries during (1991-2002)

Particulars	Iran	USA	Turkey
Production			
Share in first 2 years (%)	56.5	15	13.00
Share in last 2 years (%)	46.5	24	10.75
Change in share (%)	-17.7	60	-17.30
Harvested area			
Share in first 2 years (%)	55	7.5	10.00
Share in last 2 years (%)	66	9	9.00
Change in share (%)	20	20	-10.00
Yield / hectare			
Share in first 2 years (%)	102.5	199	130.25
Share in last 2 years (%)	71	278	120.50
Change in share (%)	-30.73	39.7	-7.48
Export quantity			
Share in first 2 years (%)	73	8	0.40
Share in last 2 years (%)	57.5	12	2.37
Change in share (%)	-21.23	50	493.75
Export value			
Share in first 2 years (%)	71	7.7	0.67
Share in last 2 years (%)	61	12	3.36
Change in share (%)	-14.08	55.84	401.86

Source: FAO (2003)

Problems faced by producer and traders in Iran: The ranking results of the factors considered by the producers and traders are depicted in Tables 2 and 3, respectively. Farmers ranked all the 14 factors and they classified them in to 9 categories (Table 2). Some of the factors have been given the same rank by the producers.

The score variation was very low varying from 74 to 87. Lack of adequate agricultural 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. Traders ranked only 12 factors out of 17 identified ones and they sorted them into 12 distinct classes (Table 3). No factor has been given the same score by the traders. The score variation was comparatively high varying from 19 to 60. Aflatoxin contamination, inappropriate and changing governmental policies and rules in export and irregular supply of product to market during the year received ranks I, II and III, respectively.

Table 2. Constraints in production, processing and marketing of pistachio from the producers' point of view in Iran

Constraints	Score	Rank
Lack of appropriate agricultural machinery	79	7
Lack of adequate agricultural water	87	1*
Lack of appropriate pesticides	81	5
Lack of appropriate chemical fertilizers	83	3*
Lack of extension and advisory services	79	7
Inadequate credits for production	82	4
Inadequate processing plants	78	8
Unsuitable domestic market structure	85	2*
Inter and intra year fluctuations of prices	85	2*
Low price of pistachio in the market	85	2*
High discount rate in domestic market undertaken by buyers	80	6
Paying late by buyers	78	8
High cost of production	82	4
Others	74	9

*The most important problems

Table 3. Constraints in production, processing and marketing of Pistachio from the Traders' point of view in Iran

Constraints	Score	Rank
Lack of extension services to the producers and processors and low quality of final product	-	Not Ranked
Lack of modern pistachio processing plants	20	11
Domestic market structure	47	4
World market structure	-	Not Ranked
Inter and intra year fluctuation of prices in world market	-	Not Ranked
High discount rate in domestic market	44	6
High and increasing trend for cost of production	19	12
Low productivity (yield per hectare)	43	7
Lack of credit to marketing agencies	46	5
Low and constant trend of prices in world market	-	Not Ranked
In appropriate and changing Government policies and rules for export	53	2*
In adequate transportation system	28	9
Inadequate of packaging industries	24	10
Irregular supply of product to market during the year	51	3*
Aflatoxin pollution	60	1*
Poor quality of product in international market	37	8
Others	-	Not Ranked

*The most important problems

Nature of the problems and how to reduce them with applying a contract system: Based on the information discussed in the previous sections, it could be obviously revealed that the Iran's pistachio industry suffers from many hindrances which could be divided in two major categories: those pertaining to producers and those concerned to traders. Both type of the problems and constraints exist due to inappropriate policies in production, marketing and export of pistachio in Iran.

As a part of the existing system, inputs and services are mainly provided through government channels which are not the product buyers, Pistachio cooperative and some private agencies buy the product from the farmers. As a result, those who are providing services to the farmers are not much bothered about the timeliness and cost effectiveness in the availability of the inputs and services. Again those who are the buyers of produce don't have any mechanism to provide services to the farmers at proper time, though the safety and quality of product is very important for them. This has created an inconsistency in the production and marketing system of pistachio in Iran, leading to the problems/constraints already explained.

For betterment of the pistachio industry, a well managed contract system can be applied with an equal right for all the stake holders.

Contract farming refers to a system where a central processing or exporting unit purchases the harvests of independent farmers and the terms of the purchase are arranged in advance in a contract base approach. The terms of the contract vary and usually specify how much product the contractor will buy and what price they will pay. The contractor frequently provides credit, inputs and technical advices. Contracting is fundamentally a way of allocating risk between producer and contractor; the former takes the risk of production and the latter the risk of marketing (Charles and Andrew, 2001).

Feasibility assessment of contract farming system for pistachio industry in Iran: Nature of the product can significantly affect acceptability and applicability of any contract scheme. Pistachio has got many characteristics that encourage undertaking a contract system instead of the existing system, the major characteristics are as follows: Pistachio is produced in dry areas with poor quality of land and water where no other crop can be produced economically (i) large quality variation and the need for quality in final product, (ii) Perishability and the need for quick processing, (iii) The value per unit is high and so it is economic to transport the product, (iv) Acceptable homogeneity between

producers either in ethnic or economic aspects, (v) Existence of quasi- monopsony market system for pistachio, (vi) The need to provide and control the credit to the farmers in the region especially at the peak season (vii) Political importance of the crop, (viii) To transfer and adopt the technology required and to offer the services for the farmers (ix) Pistachio being the only product in the region and hence all the inputs and services go to the commodity.

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 in Iran 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. There are many constraints and bottlenecks faced by both farmers and exporters, mainly due to inappropriate managerial system for pistachio industry in Iran. These problems exist due to an inconsistency in the market. Experience achieved over the last three decade reveal that, government interference in the production and marketing of pistachio was not efficient. On the other hand, the existing condition is not fully ready for running a free market system. In such a situation, contract system can play a major role to bring efficiency and profitability to the system and benefit to both the producers and traders. Since there is a need for new contract laws, regulations as well as new policy perspective, it is suggested that government take the responsibility of policy making of the contract schemes for effective operation of the system than a direct participation.

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