

Iran, a significant horticultural country[©]

N. Askari^a

Department of Plant Sciences, University of Jiroft, P.O. Box 364, Jiroft, Iran.

Abstract

Iran is the second largest country in the Middle East and North Africa (MENA) region with respect to the number of inhabitants and economy. A production of 12 million tonnes of fresh fruits and 20 million tonnes of vegetables ranks Iran as 11th and 5th world fruit and vegetable producer, respectively. Pistachio (*Pistacia*), grape (*Vitis*), and apple (*Malus*) are the main fruits. In 2015, cucumber (*Cucumis sativus*) was the main greenhouse crop (84.1%) with 1.5 million tonnes. Almost 10% of the vegetables are produced in the greenhouse. About 10,000 flower and plant nurseries are producing ornamental plants using 3,500 ha outdoor and 2,200 ha indoor. Several provinces produce high quality medicinal plants. Iran is the main world saffron producer with 351 tonnes yearly.

GEOGRAPHY AND CLIMATE

Iran is located between 25 and 40N in latitude and 44 and 64E in longitude. With a surface of 1,648,000 km² it is the 17th largest country in the world. Iran has 2440 km coastline and 5894 km borders with a number of countries, viz., Turkey, Afghanistan, Pakistan, Azerbaijan, Armenia, Turkmenistan, and Iraq. The population of Iran is 80 million. This makes it the second largest country in the Middle East and North Africa (MENA) region. The highest point and the lowest point of Iran are Damavand mountain (5610 m) and the area around the Caspian Sea (-28 m) respectively (Heshmati, 2007).

Iran is an arid (73%) or semiarid (24%) country. The Caspian Sea plain is the most humid region of the country. The mean yearly precipitation of Iran is 240 mm with maximum amounts in the Caspian Sea plains, Alborz and Zagros slopes with more than 1,800 and 480 mm, respectively. The variation in precipitation (<100 mm in 28%, 100-250 mm in 47%, 250-500 mm in 16%, 500-1000 mm in 8%, >1000 mm in 1%) shows a wide variety of climates (Ghaffari et al., 2015). The minimum and maximum average temperatures are 4 and 30°C in Northeast and Southeast, respectively. Annual potential evapotranspiration (PET) in Iran is 2100 mm (3-fold world average) with a minimum of 830 mm and a maximum 3627 mm (Dinpashoh, 2006). Iran's suitability for agriculture is ranked as very good 0.4% of the surface, good 2.2%, medium 7.9%, poor 11.4%, very poor 6.3%, unsuitable 60%, and excluded areas 11.9% (Mesgaran et al., 2017).

HORTICULTURE IN IRAN

Fruit production

The production of 12 million tonnes of different fruits ranks Iran as the 11th world major fruit producer (FAO, 2013). Iranian habitats support about 8000 species of plants (belonging to 167 families and 1200 genera), from which almost 1700 are endemic. So rich genetic resources are available for fruits breeding and 60 different fruits are produced in Iran. Table 1 shows the production and value of major fruits in Iran.

The quality of Iranian pistachio is unique as the centre and first pistachio producer of the world. Totally 2,600,000 ha horticultural fields are producing different horticultural crops all over of the country. Table 2 shows the top ranked of Iranian fruits in world according (FAO, 2013).

^aE-mail: na.askari@yahoo.com

Table 1. The main fruits production and value of Iran.

Fruit crop	Weight (tonnes)	Value (USA Dollar)
Apple	434,000	188,000,000
Pistachio	184,000	1,650,000,000
Date	168,000	227,000,000
Kiwifruit	93,000	43,000,000
Pomegranate	14,000	12,000,000
Citrus	11,000	5,700,000
Almond	2,710	240,008

Table 2. World ranking of some fruits in Iran (FAO, 2013).

Crop	Ranking	Crop	Ranking
Pistachio	1	Cherry	3
Pomegranate	1	Almond	3
Apricot	2	Walnut	3
Date	3	Apple	3

Ornamental plants production

Iranian floriculture industry consists of over 10,000 flower and plant nurseries. The area used for flower production is around 3500 ha outdoors and 2200 ha in the greenhouse (95% plastic tunnels and 5% glasshouses). Cut flowers are the most important ornamental plants produced in 1800 ha. In the second and third position are potted plants with 300 ha and ornamental trees and shrubs with 100 ha, respectively. The most common cut flowers in Iran are *Gladiolus*, rose (*Rosa*), *Polianthus*, *Dianthus*, and *Chrysanthemum*. According to official data, nearly 30-40% of the ornamental plant wholesale business is running via cut flower wholesale markets. Iran is a large country and transport is one of the most important issues for all growers. Transportation costs are nevertheless not too high (Azadi and Van der Ploeg, 2016).

Vegetable production

Iran is the 5th world vegetable producer with 20 million tonnes production (FAO, 2013). Around 767,000 ha is used for growing vegetables. Table 3 shows the Iranian worldwide ranking of some vegetables (FAO, 2013). In 2015, the area of greenhouse vegetable production was 8000 ha. Cucumber, tomato and pepper were the main greenhouse crops with 74.8, 7.4 and 5.2% of area, respectively. In addition, the major vegetables were cucumber, tomato (*Solanum lycopersicum*), and pepper (*Capsicum annum*) with 84.1, 8.7, and 3.1% of total greenhouse vegetable production (Karimi et al., 2015).

Table 3. World ranking of some vegetables produced in Iran (FAO, 2013).

Crop	Ranking	Crop	Ranking
Watermelon	3 rd	Pumpkin and gourd	4 th
Eggplant	3 rd	Tomato	5 th
Cucumber	3 rd	Onion	5 th

Medicinal plants production

Over 2400 species of medicinal plants are growing in Iran. 90% of the world's medicinal species occur in Iran. Saffron and cumin are the main medicinal plants. Iran is the first saffron producer worldwide with 92,000 ha area and 351 tonnes yearly production. Damask rose, tea, tarragon, peppermint are other medicinal plants of Iran (Karimi et al., 2015).

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