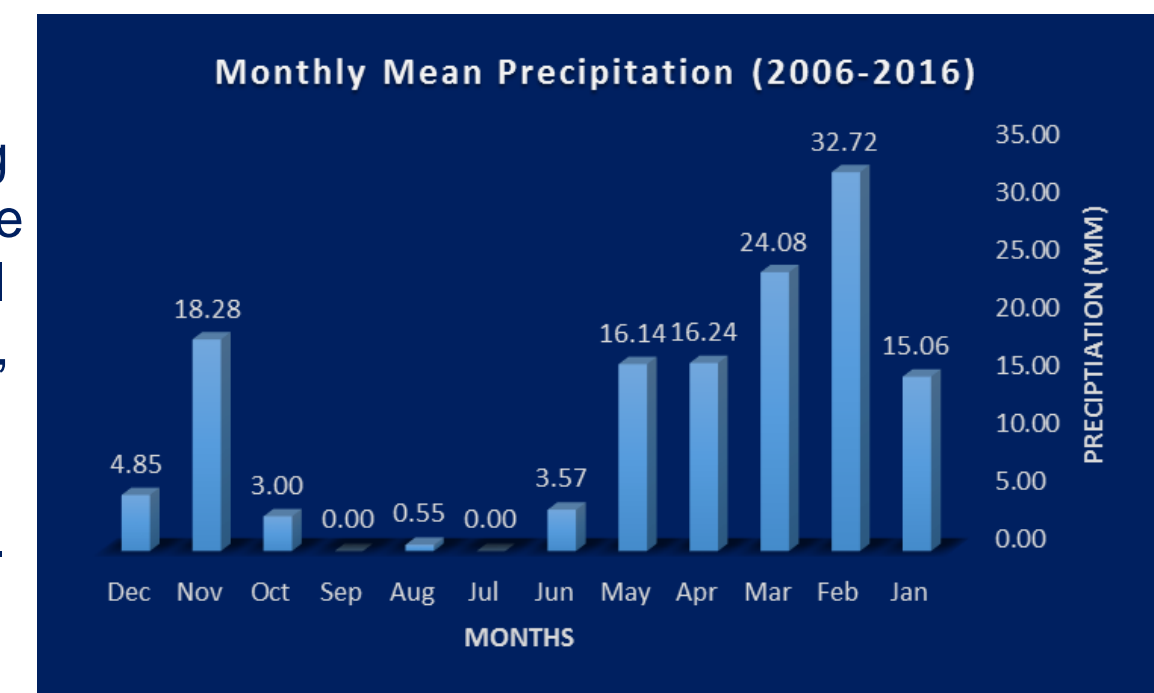
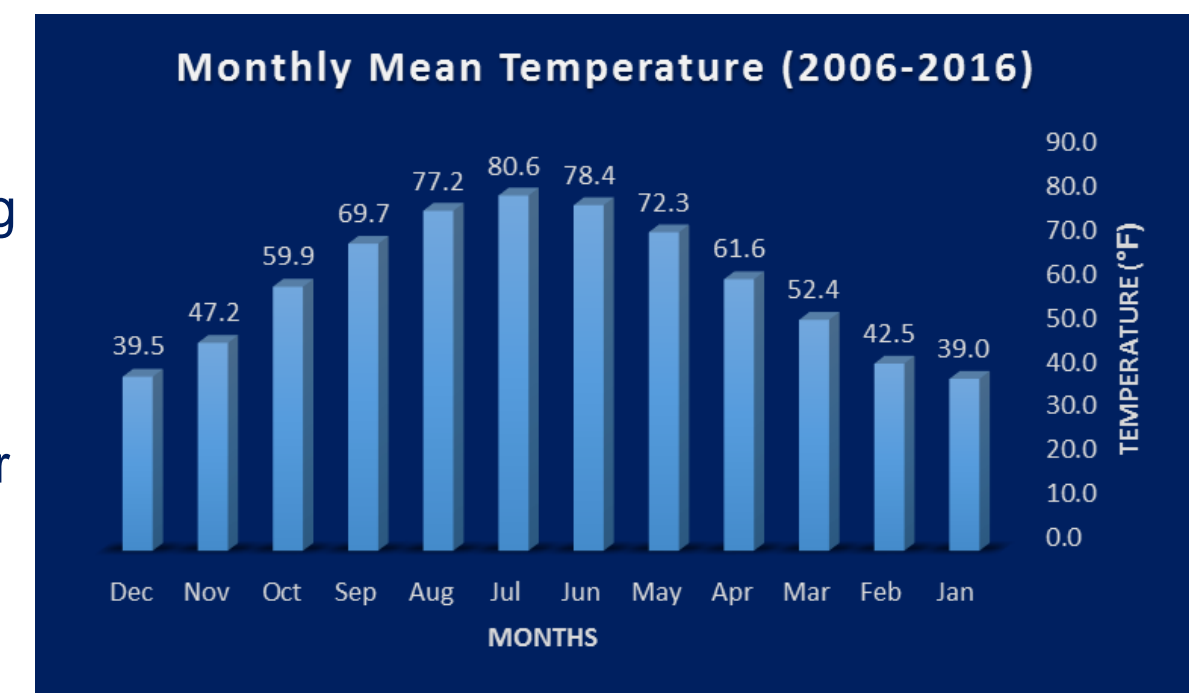


Saffron has been an important crop in Iran for over a thousand years, and Iran produces most of the world supply. Saffron is well adapted to dry conditions, but Iran has so little rainfall that saffron must be irrigated. In Iran saffron is often planted in August and early September. However, studies have shown that planting year yields can be increased by 25% to 50% if saffron is planted in June. There are two types of dormancy for bulbs. Saffron corms are in true dormancy from May to the end of June (sprouts are completely dormant). From late June until August or September corms are in light sleep or quiescent and exposure to temperatures above 25°C (75° F) affects the formation of the flower buds in the corms.



The saffron growing areas of Iran receive most of their annual rainfall in the winter, with almost no precipitation July through September.



Extremely high temperatures during the summer can reduce flowering if saffron corms are planted in August or September.



Saffron irrigation begins in late September or October. Usually saffron fields are irrigated 5 times a year. In the cold regions, the first irrigation is in the end of September or early October. After this irrigation it is very important to break the soil crust and control weeds, particularly when sprinkler or basin irrigation is used. Saffron begins flowering three weeks after the first irrigation.

The Second irrigation is usually about 40 days after the first irrigation. Farmers apply 100kg of urea fertilizer as a top dressing to support vegetative growth and use the irrigation to incorporate it. The two above-mentioned irrigations are very important in the development of roots of saffron corms and the feeding of them to support plant growth and development of the corms.

In the middle of February or the first week of March the third irrigation will be conducted, and fields will be cultivated to control winter weeds.

Saffron is irrigated again in late March to keep the corms moist while daughter corms are maturing. If needed a fifth irrigation is applied at the beginning of leaf die-back.



Flood Irrigation



Furrow Irrigation



Sprinkler Irrigation



Drip Irrigation

To prepare a field for planting, the land is plowed to a depth of 25 to 30 cm (10-12 inches) to loosen the soil and control weeds, then is left fallow. Just prior to planting about 50 to 70 tons per hectare of composted animal manure is spread over the soil and then incorporated with deep plowing. Synthetic NPK fertilizer is applied in accordance with soil test results.



plowing



Animal manure loading



Animal manure distribution



Fertilizer distribution

Planting method and corm spacing depend on the irrigation method. In dry zones with limited water where basin irrigation is used, saffron is planted by hand in holes dug with a shovel. The usual spacing is 30-25 cm between holes and the depth of cultivation is at least 25 - 20 cm, with multiple corms in each hole. While this method requires little equipment, the field must be weeded by hand and will be slower to harvest than if saffron is planted in rows.



Conventional bunch planting



Hand planting



Flood irrigation (conventional)



Bunch planted field

When saffron is planted in rows by hand the space between rows might be 25 cm and space within the rows is about 8 cm with a zig-zag pattern, resulting in a density of 50 corms/m<sup>2</sup>. If bulbs weighing 8-9 grams are used, almost 4 to 5 metric tons of corms are needed per hectare. Farmers expect only one flower per corm in the first year, resulting in at least 2.9 kg of dry saffron per hectare. For mechanical planting raised beds are used with 2-3 rows of corms in each 45 cm wide bed. Row-planted fields can be irrigated by furrow flooding, sprinkler irrigation, or drip irrigation.



Hand row planting



Row planting



Row planting



Filling planted rows



Row planting



Automatic Saffron planter



Wide planted ridges



Manual Saffron planter



Saffron field planted by automatic planter

In a saffron farm two or three crucial steps of weeding are necessary. The first and second weeding are done after harvesting and in March to eliminate winter weeds. The final weeding is done after the first irrigation and before flowering of saffron in fall. Winter weeding is usually done by hand, and if the farm is not organic, farmers use selective herbicides. Summer or fall weeding are usually done mechanically. To keep the corms at a constant depth, farmers usually spread about 5 cm of soil on the field after the fall weeding.



Weeding before flowering time



Weeding



Field after harvest and before weeding



Saffron field at end of March

Harvested flowers should be processed to separate the stigmas from the flower and dry the stigmas. Farmers may process their own saffron, or send the harvested flowers to a processing facility.



Harvest time



Transporting the harvest



Drying by heater(farmers house)



Conventional sorting method in farmer's houses



Photo: Mostafa Abasi

Fars News Agency



Bunch Saffron ready for sale

