



# Saffron: An overview

Saffron (*Crocus sativus* L.) is valued for its flower part which is used as both a spice and a color dye. Saffron production requires a **lot** of labor and careful management including regular weeding, careful monitoring of soil moisture and meticulous post-harvest handling. Herat is one of the main areas of saffron production in Afghanistan.

## Growth Requirements

Saffron is an adaptable crop that grows best where:

- **Temperatures.** Saffron can tolerate extreme temperatures (-18°C to +40°C), but it prefers a climate with wet winters and hot, dry summers.
- **Moisture.** Saffron grows well with an annual precipitation of 300 mm (12 inches).
- **Soil.** Soils should have moderate to good structure and drainage, high soil organic content and a pH between 7.0-7.5. Sandy loams are best, but a range of soils are possible.  
**Notes:** Avoid soils that are 1) prone to water logging as this encourages fungal diseases, and 2) very fertile which promote excessive vegetative growth and reduce product quality.

## Production Practices

- Plow land in the autumn or winter (20-25 cm deep)
- Level land to improve irrigation and drainage
- Remove weeds, any large pieces of crop residue, and rocks that might limit crop emergence
- Add 4-6 tons of decomposed manure per 0.2 ha (= one jerib = 0.49 acres)
- Plant in spring. There are three primary methods for planting in Afghanistan:
  1. **Ridge planting:** Labor intensive, but improves irrigation and reduces water logging and disease:
    - a. Rows are 30 cm high ridges, 50-75 cm apart
    - b. Corms should be planted 20-25 cm below the ridge top
    - c. Plant between 1,000 kg and 2,600 kg of corms per 0.2 hectares
    - d. Corm distance is flexible, though single file down the ridge
  2. **Flat Bed Planting:** Labor intensive, but has similar benefits to *ridge planting*.
    - a. Broad, flat-topped beds are prepared with multiple rows per bed
    - b. Planting density of 1,000 kg per 0.2 hectares
    - c. Crop spacing of either 20 cm (row distance) x 10cm (plant distance) or 40 cm x 5 cm
    - d. Plant 15 -20 cm deep
  3. **Traditional Method:** Saffron corms are planted in individual holes on a level field. Although not as productive, it is less costly and easy to teach.
    - a. Holes are spaced 25 cm apart throughout the field (edge to edge)
    - b. Holes should have a radius of 20-25 cm
    - c. Planting depth is 20-25 cm
    - d. 3-15 corms are planted per hole

## Harvesting

- Harvesting is by hand and the time of day can affect quality. For example, it is better to harvest early in the morning (5-7am) when the weather is cooler as the quality of the saffron flower drops as temperatures rise.

Prepared by Curran Hughes, Mark Bell and Hussain Sharifi © 2011

For more information visit: International Programs [ip.ucdavis.edu](http://ip.ucdavis.edu)

Primary reference: ICARDA Manual: "Saffron: Afghanistan's Red Gold".

<http://www.icarda.org/Ralfweb/PDFs/SaffronManualForAfghanistan.pdf>; and European Saffron Project:

<http://www.europeansaffron.eu/>

Copyright © UC Regents Davis campus, 2011. All Rights Reserved.



Saffron Crocus with red stigma. Photo: Wikipedia



Traditional saffron field in Herat Province. Photo: ICARDA



Ridge method of planting saffron in Europe. Photo: European Saffron Project