

Role Cultivation of World's most expensive spice: Saffron

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Introduction:

Saffron (*Crocus sativus* L.) commonly known as Saffron Crocus or Autumn Crocus belongs to family Iridaceae is a plant whose dried stigmas (thread like part of the flower) are used to make saffron spice.^{[1] [2]} In India people often called it as Kesar or Zaffron. There are only three stigmata in each of saffron flowers.^[3] Since such a small part of flower is used, it takes about 1,50,000 flowers to produce a kilogram of saffron along side the very fact that harvesting must be done manually, saffron's being the foremost expensive spice within the world.^[4]

In India saffron is mainly cultivated in Jammu Kashmir and Himachal Pradesh.^[5] As per CSIR-IHBJ, the annual demand of the saffron in India is 100 tonnes per annum, however its average production is about 6-7 tonnes per annum. Hence there is a good potential to cultivate saffron crops in other areas with similar climate conditions which suit the crop.



Fig no- 1. Saffron

Saffron cultivation in India –

Climatic requirement :

Sub tropical climate is optimum for growing saffron. Elevation range should be 1500 to 2500 meters above the sea level. It requires photo period of 12 hours hence planting should

be done towards the sunlight. Plants can survive extreme cold and frosts as cold as 10°C.
[7][8][9]

Season for growing :

Saffron crops are grown between the months of June and July, in some area it is grown in months of the August and September. Flowering begins in October.^[7]

Land Preparation :

Field should be ploughed 4-5 times to depth of 30-35cm to bring the soil into fine tilth, followed by the ploughing and leveling. Weeds, stubbles, stones should be removed. For ease in weeding, hoeing and irrigation raised Bed of size preferably of 1.2-1.5cm width and 15.20cm height should be made.^[9]

Propagation :

Saffron is propagated by corms that are underground compressed stems.

Different varieties of saffron cultivated in India especially in Kashmir are:

- 1 Aquilla saffron
- 2 Creme saffron
- 3 Lacha saffron^[7]

Soil requirement :

Fertile soil is required for the commercial saffron production. The crop thrives best in friable, loose, low density, well-watered and well drained clay, calcareous soil having high organic content. ^[9]PH of soil should be 5.5 to 8.5.

Seed/corm rate:

About 25-30 quintals of saffron for about 500,000 number of corms of average diameter of 2.5cm are required to plant in 1 ha^[10]

Water requirement:

Saffron requires less water than other spices. Soil must not be completely dry but just moist. Irrigation is done on weekly basis and 283 cubic per area of water must be given during the cultivation period ^[7]

Harvesting :

Flowers are harvested and stigmas are separated from the flower. Flowers are picked when they are fully bloomed and the stigma is at its reddest. The harvesting must begin shortly after dawn. If exposed to Sun, saffron quickly loses its colour and flavour.

Quality :

The quality of saffron depends on its colour (crocin concentration), taste (picrocrocin) and odour (safranal) ^[9]

Iso Grade Category	Crocine Specific Absorbance (At 440nm)	Picrocrocin Specific Absorbance	Safranal specific absorbance (at257 nm)
I	>190	25-30	100
II	150-190	---	---
III	110-150	---	---
IV	80-110	---	---

Conclusion:

Saffron is a costliest spice in the world which is obtained from its flower and total yield is dependent on corm size . It rejuvenates health and is used in cosmetic and for medical purposes. As the production of saffron in India is not enough to satisfy the demand, there is a large scope for growing saffron apart from places like Kashmir where climatic requirements are favourable.

References:

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