

## **Saffron Entrepreneurship in India: Exploring opportunities in production, value-addition and export.**

Vikas Chandel<sup>1</sup>, Abhinav Uniyal<sup>1</sup>, Kartike Sharma<sup>2</sup>, Kajal Sharma<sup>2</sup>

<sup>1</sup>Student, Department of Agribusiness Management, Dr Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan (H.P.)

<sup>2</sup>Research Scholar, Department of Agribusiness Management, Dr Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan (H.P.)

### **ABSTRACT**

Saffron is one of the most valuable crops in the world and belongs to the lily family. It grows best in Mediterranean-type climates and parts of West Asia, where rainfall is low, winters are cold and summers are hot. While Iran is the largest producer, saffron is also cultivated in countries like Spain, Italy, Greece, India, Morocco and Azerbaijan. Iran's economy has traditionally depended heavily on oil exports. Because oil prices often fluctuate, this creates instability in the country's income and overall economy. To reduce this risk, Iran has been focusing on diversifying its economy by promoting non-oil exports, such as saffron and increasing its participation in global trade. For non-oil exports to grow, it is important to create a competitive market environment. This also encourages greater involvement in international markets and organizations like the World Trade Organization. However, inflation remains a major challenge, especially in developing countries like Iran. It reduces people's purchasing power and affects the overall economy. Similarly, fluctuations in exchange rates can significantly impact trade by changing the value of exports and the cost of imports. When exchange rates are unstable, it can lead to reduced domestic production, higher prices and restrictions on foreign trade-especially in countries that rely heavily on international trade.

**Keywords:** *Crocus sativus L., Crop cultivation, Kashmiri Saffron, Cash crop, Exports.*

### **1. Introduction**

Saffron (*Crocus sativus L.*), a perennial plant belonging to the Iridaceae family, is widely recognized as "red gold" due to its exceptional economic value. The high cost of saffron is primarily attributed to the labor-intensive nature of its harvesting process. The quality characteristics of saffron are determined by three major biochemical constituents, namely crocin, picrocrocin and safranal, which are responsible for its color, taste and aroma respectively. (Hegazi et al., 2022) Saffron holds significant importance across various industries, including food, cosmetics, and textile dyeing. Globally, saffron is cultivated over an area of approximately 121,338 hectares, with Iran dominating production by contributing nearly 94% of the total yield. The term "saffron" is derived from the Old French word *safran*, meaning "gold strung," reflecting its high value. In the Indian context, Kashmir has traditionally maintained a dominant position in saffron cultivation. Renowned for its superior quality, characterized by intense color and rich flavor, Kashmiri saffron plays a vital role in the regional

agricultural economy and remains an integral part of traditional cuisine with strong market demand (Mehmeti et al., 2024).

### **2. History of Saffron in India**

Saffron has a long and fascinating history in India, particularly in the Kashmir Valley. Historical records, such as the ancient text *Rajtarangini* written by Kalhana, suggest that saffron cultivation existed in Kashmir as early as 750 AD during the reign of King Lalitaditya. Over time, saffron became deeply rooted in the culture and traditions of Kashmir. (Mzabri et al. 2019). It was known by different names such as "Kum Kum" and "Kesar" in Sanskrit and "Kung" in Kashmiri. Due to the region's ideal climate and soil conditions, saffron farming expanded and became an important part of the local economy. Even today, Kashmir is known for producing some of the finest saffron in the world, famous for its strong aroma, rich color and superior quality. It is also closely linked with Kashmiri cuisine and traditions,

making it both an economic and cultural asset (Ali and Hakim, 2017).

### 3. Global Saffron Market Overview

The global saffron market has been growing steadily due to increasing demand across industries. In 2024, the market was valued at around USD 744 million and is expected to reach nearly USD 1.19 billion by 2030, growing at an annual rate of over 8%. However, despite high demand, global production remains limited-less than 300 tons per year. (Semeniuc, 2024) This is mainly because saffron cultivation is restricted to specific regions and requires manual harvesting, which is time-consuming and labor-intensive. Iran dominates the global saffron market, contributing around 85–94% of total production. Other countries like Spain, Greece, Italy, India, Morocco and Azerbaijan also produce saffron but on a smaller scale. Interestingly, international trade data shows a growing demand for saffron. Countries like the Netherlands and Sweden have significantly increased their imports, reflecting the expanding global market (JBI, 2025).

### 4. India's Position in the Saffron Market

India is one of the key saffron-producing countries, although its production is much lower compared to Iran. The country produces around 6-7 tons annually, mainly from Pampore in Jammu and Kashmir. The Indian saffron market is also showing strong growth potential. It is expected to grow significantly in the coming years, driven by rising demand, better branding and increasing awareness about its health benefits. Kashmiri saffron is globally recognized for its premium quality and has even received a Geographical Indication (GI) tag, which helps in protecting its authenticity and boosting its market value. Apart from Jammu and Kashmir, regions like Himachal Pradesh are now emerging as new areas for saffron cultivation, opening fresh opportunities for farmers and entrepreneurs (IMARC 2025).

### 5. Major Saffron Growing Regions in India: (Srigandha et al., 2023)

- **Jammu & Kashmir:** (Pampore, Pulwama, Budgam, Srinagar, Kishtwar) i.e. Primary saffron zone.
- **Himachal Pradesh:** (Kullu, Kinnaur, Lahaul-Spiti) i.e. Emerging cultivation zones through trial projects.
- **Uttarakhand & Northeast (Small experimental plots)** i.e. Part of diversification and climate-adaptive trials.

### 6. Cultivation of Saffron: Traditional and Modern Approaches

#### 6.1 Traditional Cultivation

Traditional saffron farming involves several careful steps:

- Selection of suitable land and soil preparation
- Choosing healthy corms (planting material)
- Proper planting techniques and spacing
- Irrigation and nutrient management
- Weed, pest and disease control
- Timely harvesting of flowers
- Manual separation of stigmas
- Drying, grading and storage

This method is highly dependent on natural climatic conditions and requires significant manual labor, especially during harvesting (Srigandha et al., 2023).

#### 6.2 Indoor Cultivation (Modern Approach)

Due to challenges in traditional farming, indoor cultivation is emerging as a modern alternative. This method uses controlled environments where temperature, humidity, light and carbon dioxide levels are carefully managed.

Key features of indoor saffron farming include:

- Use of vertical racks and trays
- Climate-controlled rooms
- Faster growth cycles (flowering in 60-70 days)
- Better quality control during drying and storage
- Possibility of multiple production cycles

Indoor farming reduces dependency on weather conditions and ensures consistent production, making it highly attractive for entrepreneurs (Maryam et al., 2025).

### 7. Challenges in Saffron Cultivation (Nisa et al., 2023)

Despite its high value, saffron cultivation faces several challenges:

#### 7.1 Climate Change

Declining rainfall and increasing temperatures, especially in Kashmir, are negatively affecting saffron production. Reduced moisture leads to poor flowering and lower yields.

#### 7.2 Low Productivity

India's saffron productivity is much lower compared to countries like Spain and Italy. This is mainly due to outdated farming techniques and lack of modern technology.

#### 7.3 Diseases and Pests

Continuous cultivation on the same land leads to diseases like corm rot. Rodents and pests also damage crops.

#### 7.4 Urbanization

In regions like Pampore, agricultural land is shrinking due to increasing urban development, reducing the area available for saffron cultivation.

#### 7.5 Lack of Awareness

Many farmers are still unaware of modern drying, storage, and grading techniques, which affects the quality and market price of saffron.

### 8. Government Support for Saffron Entrepreneurs:

The Indian government has introduced several schemes to support saffron cultivation and entrepreneurship:

#### 8.1 National Saffron Mission (NSM)

Launched to revive saffron cultivation in Kashmir, this scheme provides financial support for irrigation, infrastructure and modern farming practices.

#### 8.2 Prime Minister's Employment Generation Programme (PMEGP)

This scheme promotes self-employment by providing subsidies and financial assistance for setting up saffron-based enterprises (Delhi Khadi and Village Industries Board PMEGP, 2025).

#### 8.3 Agriculture Infrastructure Fund (AIF)

This initiative offers loans with interest subsidies for developing storage, processing and value-addition infrastructure. These schemes play a crucial role in encouraging farmers and young entrepreneurs to enter the saffron business (Press Information Bureau, 2025).

#### 8.4 Saffron Export Potential

India exports saffron to several countries, including the UAE, USA, Vietnam, Hong Kong and Australia. Although Spain is one of the largest exporters globally, India holds a strong position due to the premium quality of Kashmiri saffron (Eximpedia, 2026). With better branding, quality control, and international marketing, India has the potential to increase its share in the global saffron market.

#### 8.5 Value Addition in Saffron (Sosa et al., 2022)

Value addition is one of the most promising areas in saffron entrepreneurship. Instead of selling raw saffron, entrepreneurs can create high-value products such as:

- Saffron-based sweets, beverages and dairy products
- Cosmetic products like creams and serums

- Nutraceuticals and health supplements
- Herbal and wellness products

### 9. Conclusion

Saffron is not just a spice-it is a symbol of high-value agriculture and entrepreneurial opportunity. With growing global demand, strong market prices and diverse applications, saffron has immense potential in India. However, challenges such as climate change, low productivity and lack of awareness need to be addressed through modern techniques and government support. Indoor cultivation, value addition and export promotion can transform saffron into a profitable agribusiness sector. With the right combination of innovation, policy support and entrepreneurship, India can strengthen its position in the global saffron market and create sustainable income opportunities for farmers and youth.

### References

- Ali, D. A., & Hakim, I. Q. (2017). An overview of the production practices and trade mechanism of saffron in Kashmir Valley (India): Issues and challenges. *PBR*, 10(2), 97-106.
- Mzabri, I., Addi, M., & Berrichi, A. (2019). Traditional and Modern Uses of Saffron (*Crocus Sativus*). *Cosmetics*, 6(4), 63. <https://doi.org/10.3390/cosmetics6040063>
- N. M. Hegazi, A. R. Khattab, A. Frolov, L. A. Wessjohann, and M. A. Farag, "Authentication of saffron spice accessions from its common substitutes via a multiplex approach of UV/VIS fingerprints and UPLC/MS using molecular networking and chemometrics," *Food Chem.*, vol. 367, p. 130739, 2022. <https://doi.org/10.1016/j.foodchem.2021.130739>
- Bhoomika, R. H., & Tejashwini, D. D. S. (2023). Saffron-Gold of the spices. *Just Agriculture*, 4(1). Retrieved from <https://www.justagriculture.in>
- C. A. Semeniuc, M. Mandrioli, M. J. Urs, and T. G. Toschi, "Quality and authenticity of saffron and sensory aspects," *Int. J. Gastronomy*, vol. 38, p. 10106, 2024. <https://doi.org/10.1016/j.ijgfs.2024>
- Delhi Khadi and Village Industries Board. *Prime Minister's Employment Generation Programme (PMEGP)*. Retrieved March 25, 2026, from <https://dkvib.delhi.gov.in/dkvib/prime-minister-employment-generation-programme-pmegp>
- Eximpedia. *Saffron import-export data and global trade insights*. Retrieved March 25, 2026, from <https://www.eximpedia.app>
- IMARC Group. *India saffron market: Industry trends and forecast*. Retrieved March 25, 2026, from <https://www.imarcgroup.com/india-saffron-market>
- Jadhavar Business Intelligence. *Saffron market research report*. Retrieved March 25, 2026, from

<https://www.jadhavarbusinessintelligence.com/market-research-report/saffron-market/1083>

- Press Information Bureau. *Government of India official releases*. Retrieved March 25, 2026, from <https://www.pib.gov.in>
- Maryam, M., Kumar, R., Dharmappa, D., Ghannoum, O., Moradi, S., Ellahi, B., Prasanth, S., Safeena, S. A., & Mir, S. A. (2025). Advancements in saffron cultivation: Soilless farming techniques and IoT integration. *Next Research*, 2(2), 100303. <https://doi.org/10.1016/j.nexres.2025.100303>
- Mehmeti, A., Candido, V., Canaj, K., Castronuovo, D., Perniola, M., D'Antonio, P., & Cardone, L. (2024). Energy, environmental and economic sustainability of saffron cultivation: Insights from the first European (Italian) case study. *Sustainability*, 16(3), 1179. <https://doi.org/10.3390/su16031179>
- Nisa, R., Alie, B. A., Ahngar, T. A., & Hussain, A. (2023). Indoor saffron production—How and why. *Just Agriculture*, 3(10). Retrieved from <https://www.justagriculture.in>
- Sosa, R. A., Moorillon, G., Velasco, C., Cruz, A., Carranza, P., & Perez, T. (2022). Detection of saffron's main bioactive compounds and their relationship with commercial quality. *Foods*, 11(20), 3245. <https://doi.org/10.3390/foods11203245>

