

# *Dragon Fruit: The India's Unique Super Fruit*

**Prince Kantaria<sup>1</sup>, Chetan R. Dudhagara<sup>2\*</sup> and Abinash Sahoo<sup>3</sup>**

<sup>1,3</sup>PG Students, International Agri-Business Management Institute, Anand Agricultural University, Anand-388110

<sup>2</sup>Assistant Professor & Head, Department of Communication & IT, International Agri-Business Management Institute, Anand Agricultural University, Anand-388110

**Corresponding Author**

Chetan R. Dudhagara

Email: drchetan32@gmail.com



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## **ABSTRACT**

The herbaceous perennial climbing cactus known as dragon fruit (*Hylocereus* spp.) has attracted a lot of interest from Indian growers due to its attractive red or pink colour and fruit's high economic value. Dragon fruits are primarily imported from Vietnam, Thailand, Malaysia, and Sri Lanka and sold in Indian marketplaces. Other names for dragon fruit include strawberry pear, pitaya, and pitahaya. The Dragon Fruit will be renamed "Kamalam" in Gujarat by Hon. Chief Minister, as it is shaped like a lotus and the original name is associated with China. Dragon fruit was first made available for commercial production in tropical South Asian nations. The global dragon fruit market is expected to grow at a CAGR of 3.9% over the next five years. The dragon fruit was first made available in India in the late 1990s. The top three states for producing dragon fruit in India are Gujarat, Karnataka, and Maharashtra. The largest producer is Gujarat, and the second-largest is Karnataka. Global dragon fruit cultivation is expected to increase ten-fold over the next five years. Dragon fruit is rich in flavonoids that protect against cardiovascular issues. The B-complex vitamin group (B1, B2, and B3) play a significant role in health benefits. Dragon fruit can help those with type 2 diabetes lower their blood glucose levels.

## INTRODUCTION

The herbaceous perennial climbing cactus known as dragon fruit (*Hylocereus* spp.), also referred to as red pitaya, has recently attracted a lot of interest from Indian growers due to its attractive red or pink colour and fruit's high economic value as well as its high antioxidant potential, vitamin, and mineral content. Dragon fruit is a native of Southern Mexico, Guatemala, and Costa Rica. It was brought to India in the late 1990s, and its production is currently steadily expanding. Farmers in the Indian states of Karnataka, Kerala, Tamil Nadu, Maharashtra, Gujarat, Orissa, West Bengal, Andhra Pradesh, and the Andaman & Nicobar Islands have already started growing the fruit; it is possible that less than 400 ha of land in these states is currently being used for this purpose. Dragon fruits are currently primarily imported from Vietnam, Thailand, Malaysia, and Sri Lanka and sold in Indian marketplaces. Dragon fruit production is ideally suited in the dry, frost-free agro-climatic zones of Southern, Western and North Eastern India because it is a member of the cactus family and needs lengthy days for flowering. The red hue epicarp with white and pink pulped sub-sweet juicy pulp matrix is one of the varieties of dragon fruit that is most frequently cultivated and sold. It is a perennial fruit crop that yields quickly, beginning to produce profitably the first year after planting and reaching its maximum potential in three to five years. The *H. costaricensis* species with pink pulp is also abundant in betalains, satisfying the growing demand in the market for natural foods and antioxidant products. Fruits may easily be kept fresh in a room environment. Other names for dragon fruit include strawberry pear, pitaya, and pitahaya. Despite having a unique appearance, dragon fruit tastes like other fruits. Its flavour has been compared to a somewhat sweet kiwi and pear hybrid.

### Major types of dragon fruit

There are four different varieties of dragon fruit in India, including Red-White dragon fruit, which has a red upper epicarp and a white edible endocarp with black seeds, Red dragon fruit which has a red upper epicarp and a red edible endocarp with black seeds, Red-Purple dragon fruits indicate that the upper epicarp is red, the edible portion is purple with black seeds, and Yellow dragon fruit, which has a yellow upper epicarp and white edible endocarp with black seeds.



Red-White Dragon Fruit



Red Dragon Fruit



**Red-Purple Dragon Fruit**



**Yellow Dragon Fruit**

### Dragon fruit production in the world

In 1990, dragon fruit was first made available for commercial production in tropical South Asian nations. Many nations, including Vietnam, China, Mexico, Colombia, Nicaragua, Ecuador, Thailand, Malaysia, Indonesia, Australia, India, and the United States, are producing and expanding fruit in significant amounts. Commercial dragon fruit production occurs in Vietnam, Malaysia, Thailand, Taiwan, Sri Lanka, China, and Israel. The Red skin with white pulp variety of dragon fruit has the largest market share globally: - 94% Reddish skin and white flesh, 4% have a Red skin with red flesh, and 1.5%

has red skin and purple flesh. 0.5% has yellow skin and white flesh. More than 93% of the world's dragon fruit output is contributed by three major nations: Vietnam, China, and Indonesia.

### Major dragon fruit producing countries

In 2017–18, more than 93% of the world's dragon fruit output was produced in three major nations: Vietnam, China, and Indonesia. Vietnam accounts for more than half of global output. China is the second-largest producer, making up 33.3% of global output. The third-largest producer, Indonesia contributes 10.6% of global output.

**Table 1 Area, Production and Productivity**

Country	Production Area (ha)	Production (MT)	Productivity (MT/ha)
Vietnam	55,419	10,74,242	22-35
China	40,000	7,00,000	17.5
Indonesia	8,491	2,21,832	23.6
Thailand	3,482	26,000	7.5
Taiwan	2,490.6	49,108	19.7
Malaysia	680	7,820	11.5
Philippines	485	6,062	10-15
Cambodia	440	4,840	11
India	400	4,200	8-10.5
USA	324	5,832	18
Australia	40	740	18.5
South Africa	12	100	8.3
<b>Total</b>	<b>1,12,264</b>	<b>21,00,777</b>	-

[Source: - Wakchaure *et al.* (2020)]

### World's dragon fruit market projection (2022 – 2027)

Over the next five years, the dragon fruit market is expected to grow at a CAGR of 3.9%. Because of the rising demand for fresh dragon fruit, this crop's global market is expanding quickly. In all nations, dragon fruit is primarily cultivated for the fresh market

trade and is frequently offered through specialized shops and farmer markets. For turning this fruit into exportable products, some major exporting nations, like Vietnam, are developing simple post-harvest preservation systems. The fruit is also being sold in new markets, including as China, Australia, New Zealand, and India.

(Source: - www.mordorintelligence.com)

### Dragon fruit production in India

The dragon fruit was first made available in India in the late 1990s. After that, from 4 to 3,085 ha in various states were steadily added to its cultivation area between 2005 and 2020. Farmers from Karnataka, Maharashtra, Gujarat, Kerala, Tamil Nadu, Orissa, West Bengal, Andhra Pradesh, Telangana, and the Andaman & Nicobar Islands were the first to cultivate dragon fruit. Recent projections state that India would produce more than 12,000 MT of dragon fruit over an area of 3,000–4,000 ha in 2020. Indian farmers who use appropriate cultivation techniques and drip irrigation can get yields of up to 4.5 tonnes per hectare in the first year after planting, 7.5–10 tonnes per hectare in the second year, and 16–24 tonnes per hectare beginning in the third year.

**Table 2 Year Wise Estimated Area under Dragon Fruit Cultivation**

Years	Area under cultivation (in ha)
1990	Introduced in India (0.5)
2005	4
2010	12
2012	15
2014	35
2017	400
2020	3,085

[Source: - Wakchaure *et al.* (2020)]

### Major dragon fruit producing states

The top three states for producing dragon fruit in India are Gujarat, Karnataka, and

Maharashtra, accounting for around 70% of total production in 2020. Major dragon fruit-growing regions in the nation are Western Maharashtra, Northern Karnataka, and the water-scarce Kutch region of Gujarat. Since they have been cultivating dragon fruit for the past 5-8 years, southern and western states account for a significant portion of the world's production of the fruit. The largest producer of dragon fruit is Gujarat, and the second-largest producer is Karnataka.

**Table 3 Area, Production and Productivity in India**

Major States	Total area (ha)	Total production (MT)	Total productivity (MT/ha)
Gujarat	1,214	4,079	10.2
Karnataka	485	2,369	15.4
Maharashtra	323	1,677	16.6
West Bengal	303	1,177	13.1
Meghalaya	174	786	14.4
Tamil Nadu	121	505	14.2
Andhra Pradesh	140	455	11.7
Telangana	80	278	11.8
Rajasthan	38	107	9.5
Other	202	678	12.2
<b>Total</b>	<b>3,080</b>	<b>12,111</b>	<b>Avg. 12.9</b>

[Source: - Wakchaure *et al.* (2020)]

### Indian's dragon fruit market projection (2020 – 2025)

According to this forecast, the area used for dragon fruit cultivation will increase by more than ten times, or by approximately 30, 000 ha, over the course of the next five years. The expected upward trajectory will be influenced by consumer acceptance, market demands, and governmental regulations. Because of the rising demand for fresh dragon fruit, this crop's global market is expanding quickly.

[Source: - Wakchaure *et al.* (2020)]

### Nutritional value of dragon fruit

Nutrition facts for red-skinned, white-fleshed dragon fruit (*Hylocereus undatus*) are provided per 100 grams in the chart below. Note that the nutrition facts for red-skinned, red-fleshed pitahaya (*Hylocereus polyrhizus* or pitahaya roja) are slightly different. Similarly, the nutritional value of the yellow-skinned dragon fruit variety (*Selenicereus megalanthus* or pitahaya amarilla) is somewhat different.

**Table 4 Nutritional Facts**

Nutrient	Amount per 100g	% Daily Value	Comment
Water	87 g	NA	Very high water content
Protein	1.1 g	2.1 %	
Fat	0.4 g	NA	Contains practically no fat
Carbohydrates	11.0 g	3.4 %	
Fiber	3 g	12 %	Very good source of dietary fiber
Vitamin B1 (Thiamine)	0.04 mg	2.7 %	
Vitamin B2 (Riboflavin)	0.05 mg	2.9 %	
Vitamin C (Ascorbic Acid)	20.5 mg	34.2 %	Contains more than 3 times the amount of vitamin C found in carrots
Calcium (Ca)	8.5 mg	0.9 %	
Iron (Fe)	1.9 mg	10.6 %	A good source of iron
Phosphorus (P)	22.5 mg	2.3 %	

(Source:-[www.healwithfood.org](http://www.healwithfood.org))

### Health benefits of dragon fruit

Health advantages of additionally abundant in flavonoids that protect against cardiovascular issues, dragon fruit also helps to manage bleeding issues and discharge. Although

dragon fruits are high in fibre, they help with meal digestion. The B-complex vitamin group (B1, B2, and B3), which play a significant role in health benefits, is also abundant in dragon fruit. Vitamin B2 in dragon fruit serves as a multivitamin but also aids in enhancing and regaining appetite loss. Vitamin B1 aids in raising energy production and glucose metabolism. And the vitamin B3 found in dragon fruit is essential for decreasing harmful cholesterol levels and for giving skin a smooth, moisturised appearance. Additionally, it enhances eyesight and lowers blood pressure. Additionally, dragon fruit can help those with type 2 diabetes lower their blood glucose levels. According to studies, the glucose in dragon fruit helps diabetics control their blood glucose levels. High levels of calcium and phosphorus are present. It has a significant part in tissue formation, creates healthy teeth, and strengthens bones.

### Import of dragon fruit to India

The import value of India was USD 19.77M, and the import volume was 16.39M metric ton in 2021.

**Table 5 Import of Dragon Fruit**

Year	Import Value (in USD)	Import Volume (in MTs)
2021	19.77 M	16.39 M
2020	12.42 M	11.25 M
2019	19.68 M	16.03 M
2018	14.29 M	13.54 M
2017	10.8 M	8.14 M

(Source: - [www.tridge.com](http://www.tridge.com))

### Export of dragon fruit from India

The export value of India was USD 96.25M, and the export volume was 101.03M metric ton in 2021

**Table 6 Export of Dragon Fruit**

Year	Import Value (in USD)	Import Volume (in MTs)
2021	96.25 M	101.03 M
2020	90.71 M	81.08 M
2019	115.09 M	96.77 M
2018	98.61 M	71.51 M
2017	110.11 M	83.03 M

(Source: - www.tridge.com)

**CONCLUSION:**

Dragon fruit areas under cultivation are gradually increased from 4 to 3,085 ha in different states during 2005–2020. The marketability of dragon fruit in the region is expected to be very high because of the limited number of commercial producers and high demand. Dragon fruit contains a lot of water and other important minerals with varied nutritional ingredients. Increasing demands for fresh dragon fruits in the domestic and global market because of excellent taste, flavour and shape, and awareness of health benefits. Many human ailments, including cancer, gastrointestinal problems, and diabetes, can be prevented by consuming dragon fruit.

**REFERENCES:**

Dragon Fruit Export from India- Tridge. (2022). Retrieved from <https://www.tridge.com/intelligences/dragon-fruit/IN/export>

Dragon Fruit Import to India- Tridge. (2022). Retrieved from

<https://www.tridge.com/intelligences/dragon-fruit/IN/import>

Dragon Fruit Market - Growth, Trends and Forecast (2022 - 2027), 2022. Retrieved from <https://www.mordorintelligence.com/industry-reports/dragon-fruit-market>

Dragon Fruit: Nutritional Value, Health Benefits and Calorie Count. (2022). Retrieved from <https://www.healwithfood.org/nutrition-facts/dragon-fruit-nutritional-health-benefits.php>

Karunakaran, G., Arivalagan, M. & Sriram, S., (2019). Dragon fruit country report from India. *Dragon fruit Network: Marketing and whole value chain and steering committee meeting, HS-IIHR Publication*, 105-112.

Waghmare, G.M., Jadhav, A.R. & Shinde, V.N., (2021). Dragon Fruit: World and Indian Production Scenario. *AgriCos e-Newsletter*, 2 (2), 67-68.

Wakchaure, G.C., Satish Kumar, Meena K.K., Rane, J. & Pathak, H., (2020). Dragon fruit cultivation in India: Scope, Marketing, Constraints and Policy issue. *ICAR-National Institute of Abiotic Stress Management, Baramati, Pune, Maharashtra (India), Technical Bulletin No. 46*, 1-24.