

DRAGON FRUIT: THE NEW JEWEL OF INDIAN HORTICULTURE

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INTRODUCTION:

Dragon fruit, scientifically known as *Hylocereus* spp., is an exotic fruit that has gained popularity in India over the past few decades. Originally introduced in the late 1990s, it has seen a significant increase in cultivation due to its nutritional benefits and potential for high economic returns. This article delves into various aspects of dragon fruit cultivation in India, including climatic requirements, planting techniques, and challenges faced by farmers.

This fruit crop was only recently brought to India, where a small number of producers in the states of Gujarat, Maharashtra, and Karnataka have begun to cultivate it. Vietnam is currently the world's largest exporter and producer of dragon fruit. This crop was brought to the area by a French priest in the middle of the 1800s, and thanks to favourable weather, it eventually adapted to become the region's main fruit crop. Pitaya fruits are currently imported into India from Thailand and Vietnam.

USES

Due to its high nutritional value and antioxidant characteristics, dragon fruit is becoming more and more well-known as a superfruit. This fruit can be processed and used on a table. Dragon fruit is the best fruit for salads because of its vibrant bracts, dark red flesh, and tasty little black seeds encased in white flesh. Dragon fruit pulp can be used to make value-added goods such as juice, jam, jelly, candies, syrup, and wine. Fruit peel is a rich source of pectin and various methods are reported to yield 7.5% of pectin from fruit peel.



NUTRITIONAL VALUE

Name	Amount
Water	84 g
Energy	57 kcal
Protein	0.36g
Total lipid (fat)	0.14g
Carbohydrate, by difference	15.2g
Fiber, total dietary	3.1g
Sugars, total including NLEA	9.75g
Calcium, Ca	9mg
Iron, Fe	0.18mg
Magnesium, Mg	7mg
Phosphorus, P	12mg
Potassium, K	116mg

VARIETIES

The majority of the dragon fruit types and variations that are currently grown in farmers' fields are imports from other nations. There are no records of a methodical dragon fruit breeding effort in the nation for varietal or germplasm assessment. The growers in India primarily like red pulped dragon fruits. Recent breeding and selection research in Taiwan and Vietnam has resulted in many self-fertile and productive pitaya varieties. Some notable selections such as 'Vietnam No.1' produce large, pink fruits (averaging 397 g, \pm 85 g) with white flesh and high levels of total soluble solids of 13–19%.





CLIMATIC REQUIREMENTS

Dragon fruit thrives in tropical and subtropical climates, making it well-suited for various regions in India. It requires a warm climate with temperatures ranging from 20°C to 30°C and can tolerate some degree of cold but not frost. Optimal growth is observed in regions with 500-1500 mm of annual rainfall, distributed evenly throughout the year. The fruit is sensitive to waterlogging, so well-drained soils are essential.

SOIL AND PLANTING

The ideal soil for dragon fruit cultivation is sandy loam with a pH range of 6 to 7. Good drainage is crucial to prevent root rot. Farmers typically prepare the soil by incorporating organic matter, such as compost or well-decomposed manure, to enhance soil fertility.

Planting is usually done using cuttings, which are preferred over seeds for faster and more uniform growth. Cuttings of 30-50 cm length are treated with fungicides before planting to prevent infections. These cuttings are then planted in rows with a spacing of 2-3 meters between plants and 3-4 meters between rows.

IRRIGATION AND FERTILIZATION

Dragon fruit plants require regular but moderate watering. Drip irrigation is often recommended as it ensures efficient water use and minimizes the risk of waterlogging. During the initial growth phase, plants are watered twice a week, while mature plants need irrigation once a week, depending on the weather conditions.

Fertilization is essential for optimal growth and fruit production. A balanced fertilizer containing nitrogen, phosphorus, and potassium (NPK) is applied at regular intervals. Organic fertilizers, such as vermicompost and bone meal, are also beneficial. Integrated nutrient management practices help in maintaining soil health and enhancing fruit quality.



PEST AND DISEASE MANAGEMENT

Dragon fruit plants are relatively hardy but can be susceptible to pests and diseases. Common pests include aphids, mealybugs, and mites. Biological control methods, such as introducing beneficial insects, are encouraged to minimize chemical pesticide use.

Diseases such as anthracnose, caused by the fungus *Colletotrichum gloeosporioides*, can significantly impact yield. Preventive measures include the use of disease-free planting material, proper spacing for air circulation, and regular monitoring. Fungicidal sprays are used as a last resort.

POSTHARVEST HANDLING

Postharvest handling is crucial to maintain the quality and extend the shelf life of dragon fruits. The fruits are harvested when they have attained full color but are still firm. Postharvest treatments include washing, sorting, and grading based on size and quality. Cold storage at 10°C can extend the shelf life up to three weeks.

ECONOMIC AND NUTRITIONAL BENEFITS

Dragon fruit has a large market demand and relatively cheap input costs, making its cultivation economically feasible. Because of its abundance in vitamins, minerals, and antioxidants, this fruit is well-liked by consumers who are concerned about their health. Its market potential is further increased by value addition, such as processing into juices, jams, and dried products.

CHALLENGES AND FUTURE PROSPECTS

Despite its potential, dragon fruit cultivation in India faces challenges such as lack of awareness among farmers, high initial investment costs, and inadequate support infrastructure. Research and extension services are crucial to address these issues and promote sustainable cultivation practices. The future prospects for dragon fruit cultivation in India are promising. With increasing consumer demand and government support, the area under cultivation is expected to expand. Innovations in cultivation practices, pest and disease management, and postharvest technology will play a key role in ensuring the sustainability and profitability of dragon fruit farming.

