

Hop Shoots Vegetable: The Expensive One

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Hop shoots are a unique and lesser-known vegetable that has gained attention in recent years for their distinct flavour and nutritional benefits. Hop shoots also known as Hops and the scientific name of this plant is *Humulus lupulus*. Grown in certain regions, hop shoots are considered a delicacy in many countries, especially in Europe and Asia, and are increasingly appreciated by food enthusiasts and chefs worldwide. Hops are the flower cones of the hop plant. Though native to Europe and America, it has already debuted in India. The plants were discovered sometime around the early phase of the 11th century. These were deemed as weeds before the world cracked their medicinal properties. This perennial climber has a lifespan of 20 years and attains a height of around 6 meters, when they have sufficient amount of moisture and sunshine. It grows in early spring and dies back to a cold-hardy rhizome in autumn. This plant has separate male and female plants. The female plant has cone-shaped flowers known as hops that are used to add flavour in beer so, hop shoot plant are mainly cultivated for the brewing industry. These female flowers have petals that envelop the fruit and protect it. The fruit it bears is dry and does not split open at maturity. The hop shoots at the earliest stage are dark purple in colour, but during later stages it turns into green color. The hop shoots give a nutrient-rich vegetable before developing into the hop bine. Furthermore, the female plants develop a flower, called 'burr', from which the cones generate.



Regional Popularity

Hop shoots are particularly popular in parts of Europe, especially in countries like Belgium, Germany, and the Netherlands, where they are a traditional springtime delicacy. They are also enjoyed in some Asian countries, particularly in Japan, where they are used in a variety of dishes. In these regions, hop shoots are often seen as a seasonal treat and are served in high-end restaurants, farmers' markets, and food festivals.

In India, hops are not extensively grown because there is not a favourable climate for this crop. However, some small-scale cultivation is done in the Himalayan regions, like Himachal Pradesh, Jammu and Kashmir, and Uttarakhand as the climate of these temperate region is more suitable for hop cultivation. This crop is primarily grown in cool climates such as in the northern hemisphere, specifically in countries such as Germany, Czech Republic, and the United States, and regions such as the Pacific Northwest and New England. The United States of America is the world's largest producer of hops, the flowers of female *Humulus lupulus* plants. The primary use of hops grown in the United

States is in brewing industries. In 2019, the U.S. accounted for 40% of world hop production and 39% of world hop acreage. In 2022, United States exported \$298M Hops, making it the 1st largest exporter of Hops in the world.

Importance of Hop shoot vegetable:

- Hop shoots are known for their unique qualities, benefits and tons of nutrient qualities in it. It has antibacterial and therapeutic properties. Hop shoots fruit, blossom, and stem are used to manufacture beverages, such as beer and antibiotics as well as for other medicinal purposes.
- The plant's bloom, known as hop-cones are used in beer manufacturing process as a stability agent and balance the sweetness of the beverage.
- The stalks of this plant have been discovered to have a significant effect on tuberculosis therapy. Hop shoots also have a critical role in cancer treatment. Some of the acids present in hops such as humulones and lupulones, prevent the emergence of leukemia.
- The medicines made from hops improves digestion, promotes relaxation for patients suffering from depression or anxiety, acts as an analgesic and treats sleeplessness.
- The usage of hop shoots in European countries is widely popular for keeping the skin gleaming, natural and young as the hop shoots are rich in antioxidants and these antioxidants assist in cleaning and shining of the skin.

Why are they so expensive?

Hop shoots vegetables sell for almost a whopping INR 1 Lakhs per kilogram, around €1,000 per kilogram. Hop shoot plant takes three years to fully mature before harvest. On the other hand, the plant cost huge labour costs and is considered a back-breaking crop. These tiny green tendrils grow willy-nilly and the farmers had to work to crouch and find them. Therefore, it consumes more time and thus labour cost is increased. Also, organic hop seed plantation requires more maintenance and care to prevent plants from getting damaged. Moreover, it also requires better and more suitable climatic conditions to grow and every climate is not suitable for plant cultivation, which develops a scarcity of plant cultivation and thus hop shoots seeds price in India rise.



Furthermore, many studies have shown the medicinal, pharmaceutical, nutritional and health benefits of hop shoot. This increases the demand and thereby also increases the hop shoots price in India. Thus, a plant with tons of benefits and uses can incredibly increase the price. Each part of the plant whether the flower, fruit or stem is useful in many different ways, which are discussed as follows:

- The bitter taste of hops flowers makes a good stability agent for balancing the sweetness in the beer.
- The hop shoot plant climbers are rich in antioxidants, thus, people in Europe use it as an herb to protect their skin from cold and is mainly used in making antibiotics.
- The hop acids - humulones and lupulones produced from the hop plant are believed to play a crucial role in cancer treatment of leukaemia and resist bone damage. By blocking cancer cells, they resist them from causing bone damage. It is used to cure anxiety, depression and insomnia and acts as a relaxing agent.

- Certain compounds in hop shoots, such as flavonoids and polyphenols, are believed to have anti-inflammatory effects, which may help reduce the risk of chronic diseases like arthritis and cardiovascular disease.
- These plants have anti-inflammatory properties. Hence, it benefits persons suffering from arthritis.
- The intake of hop shoots also helps in reducing the risk of cardiovascular diseases.
- This strange-looking yet beneficial vegetable also helps improve digestion. It also has analgesic properties.
- Hops have been used for centuries in traditional medicine as a remedy for insomnia and anxiety. While the exact mechanisms are still being studied, some research suggests that compounds in hops may promote relaxation and improve sleep quality.
- The fibres content in hop shoots can help support digestive health by promoting regular bowel movements and supporting the growth of beneficial gut bacteria.
- Most commonly hops are best recognized as the component of beer. They were initially used as a medicinal herb. Each part of the plant includes bioactive chemicals such as flavonoids and bitter acids. These acids have antibacterial, antioxidant, and antifungal properties.
- After the cones are harvested, the hop stems are left in the field as waste. These stems are by-products and thus have limited applications. Moreover, the hop-shoot stems have an exterior bark and an inner pith. Long-length fibres (10–15 cm) are developed from the fibrous outer bark of the stem. Hence, the resulting fibres have good cellulose content, a low crystallinity, and high cellulose crystal alignment to the fibre axis. This makes the fibre suitable for use in the textile industry.
- The intake of hop shoots also helps in reducing the risk of cardiovascular diseases.

Cultivation of Hop shoot vegetable:

Hop plants are typically grown on trellises or frames to support the vines as they climb. These vines can grow several meters tall, and hop shoots are harvested from these vines in the early spring when they emerge from the soil. These plants love plenty of light, at least six to eight hours per day. Hop shoots are a high-value crop and the supply of enough water affects both productivity and quality. It requires a continuous supply of water



throughout the growth season. Moreover, the amount of supplemental irrigation required is affected by several factors like climate, soil characteristics and plant-specific attributes. Lack of moisture in plants results in plant stress and affect production with lower yields and even death of the plant. Symptoms of water stress are reduced plant vigour, halted growth, drying of leaves, *etc.* Drip irrigation works best in these plants as the plant has a shallow root system. Overhead and furrow systems are also utilized practised to irrigate large plantations.

Hop shoots are harvested early in the season, often before the plant fully matures. The timing is crucial because the shoots should be tender and not too fibrous or woody. The harvest window is narrow, and the shoots are typically picked in late March to early April. Hop plants thrive in temperate climates, and areas with cool winters and mild summers are ideal. Specific conditions, like well-drained, fertile soil, and plenty of sunlight, are needed for optimal shoot production. Due to the delicate nature of hop shoots, they are often harvested by hand. The



young shoots are carefully plucked from the base of the vine, ensuring they are tender and not too fibrous. Growers typically harvest only the tender, young shoots, avoiding older, tougher growths that can develop into the later hop cones used in brewing.

Hop shoots can be grown in different types of soil like sandy, clay *etc.* Soil should be well-aerated and well-drained with pH 6.0-6.5. Hops thrive well in nutrient-rich soil. In the first year of sowing, hops develop a small root system so, it requires regular supply of proper irrigation. One of the best ways to deter weeds and keep the moisture intact is – mulching and avoid over irrigation. Hop shoots do not grow in acidic soils. Hence, liming should be done as per requirements to keep the pH above 6.5. For better results, the nitrogen is applied by mid-June. Potassium is mainly used by hop cones and also promotes the development of leaves and vines. On the other hand, phosphorus is less required compared to N and K.

The propagation takes place through vegetative methods. The vegetative methods of production have stem/leaf cuttings and Rhizomes. Dormant rhizomes from the mature crown in the cooler months or green cuttings from current season growth in spring generate the majority of new plants. Rhizomes are underground shoots, which are trimmed from the crown, split into pieces, and planted directly in the hop yard, or grown in pots. This can even grow under protected conditions like greenhouses, *etc.* Moreover, green stem cuttings obtained in the spring and early summer prove to be the best technique to propagate a large number of new plants during the growing season.

Cultural Significance

In countries such as Belgium, France, and Germany, hop shoots are a traditional spring delicacy, often marking the start of the growing season. The arrival of hop shoots is celebrated as a sign of the season's change and the renewal of life in the agricultural calendar. In some areas, the harvest of hop shoots is part of local festivals or celebrations. For instance, in parts of Germany, hop harvests (which include both shoots and later flowers) are accompanied by local festivals, where hop products are celebrated with food and drink. While hop shoots are a gourmet food item, they are relatively rare and can be quite expensive. This gives them a unique place in local markets and dining experiences.

Conclusion

Hop shoots are a rare and fascinating vegetable that combine culinary elegance with impressive nutritional benefits. Though they are not widely known outside of certain regions, their unique flavour, delicate texture, and short harvesting season make them a prized seasonal treat. Whether sautéed, pickled, or added to salads, hop shoots offer a delicious and nutritious addition to the springtime table. As interest in local, seasonal, and unique produce grows, hop shoots are likely to become a more prominent feature in kitchens and markets around the world.