

# Blueberries in Uplands: A New Prospect for North East Indian Horticulture

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The blueberries are the most delicious and popular fruits of Ericaceae family which is suitable for cultivation in the acidic soils. The importance of Blueberries is reaching every people so the demand for the fruit is increasing in every part of the country. These berries are considered as super foods because of its high antioxidant properties, especially anthocyanins, which give them blue colour. Apart from this, berries are also excellent source of Vitamin C that boosts immune system. They are significant contributors to health, agriculture, and the economy, and their value goes beyond their wonderful flavour and culinary variety.

The health benefits of this fruits include protection of cardiovascular system, cancer prevention, diabetes management and improve the memory and cognitive function. The countries like United States, Canada, Europe has well established blue berry industries, which exports large qualities to the other countries to meet the global demand.

In Himachal Pradesh and Uttarakhand, the cultivation of the crop is becoming more common. Earlier the planting material was imported every year for cultivation but recently one nursery got registered as first blueberry nursery from Himachal Pradesh, Kangra district that is authorized to produce and sell blueberry planting material. In Arunachal Pradesh, this crop was introduced in the year 2017 in West Kemang district, through initiatives from the State Department. After that, crop is being cultivated by some of the progressive farmers. However, there is a lot scope available for expansion of the crop as the climatic conditions of the state also matches with the Climate of Himachal Pradesh and Uttarakhand.

## Favourable climatic conditions

The north eastern region of India has diverse agro climatic conditions that can be suitable for growing blueberries, especially in the hilly region. The hilly areas include parts of Meghalaya, Arunachal Pradesh, Nagaland, Mizoram that experiences mild summer and cool winters, which is most suitable for blueberries. The bushes need chilling

requirement from 400-1100 hours, which varies from variety to variety. The minimum and maximum temperatures in the growing period may range from 15 to 25 °C. This particular region receives good rainfall particularly in the month of monsoon from June to September making it good for cultivation of blueberry as it is moisture loving plant. To prevent water logging, it is advised to plant in raised beds.

The soils of this region are naturally acidic (pH 4.5 to 5.5) and rich in organic matter, which is beneficial for blueberry plants. Moreover, hilly areas receive more sunlight, essential for plants growth. Overall, the ideal climatic conditions of this region make it promising for diversifying agriculture by cultivating blueberries.

## Varietal Considerations

The selection of the appropriate variety is the most important criteria for successful cultivation of the blueberries as it directly impacts the growth, yield and quality of the crop.

**Half-high blueberries:** These are cross between low bush and high bush blueberries. These are self-fertile, but if cross-pollination occurs, they get benefit. The chilling requirement of these varieties is 800-1000hrs.

**Varieties:** Northblue, Northcountry, Northsky, Polaris, Northland, Top Hat, Burnswick

**Northern high-bush blueberries:** These are self-fertile and needs consistent pruning. The chilling requirement of these varieties is 800-1000hrs.

**Varieties:** Duke, Patriot, Reka, Blueray, Bluecrop, Bluegold, Chandler

**Southern high-bush blueberries:** They are self-fertile in nature but it gets benefited from cross-pollination. They need 200-800hrs of chilling.

**Varieties:** Legacy, Sharpblue, Biloxi, Misty, Colibri, Jewel, Jubilee

**Rabbiteye blueberries:** These are cross-pollinated in nature. The chilling requirement is around 400-700hrs.

**Varieties:** Brightwell, Climax, Premier, Tifblue, Powderblue

By selecting appropriate varieties and managing soil and water conditions effectively, blueberry cultivation in Northeast India can be a successful venture.

### Economic and agricultural significance of blueberries

The global demand for the blueberries is increasing and this creates significant economic returns for the growers and contributes to the economy of farmers. The blueberries are well suited for the temperate climate and the acidic soil conditions of north east India. Their cultivation creates crop versatility, providing variable source of income. These are high value crops, so if the cultivation is done in a scientific way to meet the export standards, the fruits can be exported to the neighboring countries in the fresh or dried form. These are less susceptible to the insect and pest attack compared to other crops, so their cultivation can be integrated with the other crops and this can be a part of sustainable farming.

### Success stories

The introduction of blueberries in Arunachal Pradesh has showed very good results. Many progressive farmers have taken initiative to grow blueberries in a small scale and plants are showing outstanding growth and adaption to the local agroclimatic conditions. This success is because of the regions soil and climatic conditions, which resemble the natural habitat of the crop ensuring the overall growth of the plant.



**Flowering and bearing in blueberry plants in State Horticulture Farm, Shergaon and Lubrang, Arunachal Pradesh**

Remarkably, State Horticulture Farm in Shergaon has emerged as model for the successful cultivation of the blueberries. By adopting the advanced horticultural practices and proper crop management, the farm has achieved significant success in cultivation, further showcasing the crops potential as option for high value crop. This initial success is encouraging the more farmers to take up the cultivation. This shift will not only help in crop diversification but also it improves the livelihood of the farmers, given the high market demand and profitability.

The success of these efforts shows potential of blueberries as a productive and sustainable

horticultural crop of the hilly regions of North-East India, setting a platform for large scale adoption in future.

### Challenges and solutions

There are certain challenges in the cultivation of the blueberries which mainly includes initial investment for setting up of blueberry farm will be high including the land preparation and procurement of plant. The planting materials are also not easily available to the farmers and selection of the variety plays a key role in success of the cultivation. In addition, there is lack of traditional knowledge in cultivation of this crop. To address this, government should take initiatives to provide subsidies and training programs to farmers.

As it is highly perishable in nature, proper logistics and storage facility is needed. Establishing proper cold chain facility can be a solution to mitigate this problem. Creating awareness about the benefits of this fruit and promoting this in domestic market is essential. By addressing these challenges blueberry cultivation can be successfully done in Arunachal Pradesh.

### Conclusion

Blueberry farming in Arunachal Pradesh holds a significant potential because of its favorable soil and climatic conditions. Strategic planning and implementation of the best agricultural practices can optimize the yield and profitability. Even though the fruit has lot of scope, it needs similar care. The most important things to consider while growing blueberries are selection of variety and the soil type, as it is very much sensitive to the varying pH of the soil. The pH of the soil should be well maintained. Additionally, advanced research and collaboration between farmers, researchers and policy makers is essential for getting the full potential of this crop.

By tapping the unique agroclimatic condition available in this region, the state can also contribute in diversification of the crop and also it can increase the economic status of the farmers.

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