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Original Article**Discovering the vibrant array of horticultural crops in arunachal pradesh**Lachi Drema*¹ and Dorjee Kessang²¹ICAR Research Complex for NEH Region, AP Centre, Basar Arunachal Pradesh²M. Sc (Horti), Doon PG College of Agriculture, Science and Technology, Dehradun, Uttarakhand*Corresponding Author: lachidrema2015@gmail.com

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INTRODUCTION

Arunachal Pradesh, situated in the northeastern part of India, boasts a remarkable diversity of horticultural crops, attributed to its varied topography, climatic conditions, and rich cultural heritage. The state's unique geographical setting, ranging from tropical to alpine climates, allows for the cultivation of a wide array of horticultural products, making it a significant contributor to India's horticulture sector. Arunachal Pradesh has dense natural resources, be it a forest, water, or other resources. Available resources are still not harnessed at its best and have high potential for development through the proper utilization of these resources. Development without considering the natural environment is very susceptible from the sustainable point of view. The practice of horticulture was in existence in Arunachal Pradesh since long back but basically for self-consumption. Being an important source of nutrition and alternative source of livelihood, horticulture is widely promoted. The diversification towards horticulture sector contributes to rural income and has great potential to generate revenue to the farmers, improves socioeconomic status of the people and their living standard.

1. Diversity of Fruit Crops in Arunachal Pradesh: The snow-capped Himalayan peaks to the fertile valleys and tropical lowlands. This diversity in altitude and climate enables the cultivation of a wide range of fruit crops, each adapted to specific microclimates.

Temperate Fruits: In the higher altitudes of Arunachal Pradesh, temperate fruits such as apples, pears, plums, and kiwis thrive. Districts like Tawang, West Kameng, and Upper Siang are renowned for their apple orchards, where varieties like Royal Delicious, Red Delicious, and Golden Delicious are cultivated. The cool climate and adequate rainfall in these regions provide ideal conditions for these fruits, ensuring high quality and yield. Additionally, kiwi cultivation has gained popularity, with Arunachal Pradesh becoming one of the leading producers in India. The *Actinidia deliciosa* variety of kiwi, known for its excellent flavor and nutritional value, is particularly notable.

Subtropical Fruits: In the mid-altitude regions, subtropical fruits like oranges, lemons, and pineapples are extensively grown. The fertile valleys of Lohit, Changlang, and East Siang districts are especially known for their citrus orchards. The oranges from the region, particularly the Khasi mandarin variety, are highly prized for their sweetness and juiciness. The subtropical climate with moderate temperatures and well-distributed rainfall supports the cultivation of these fruits, making them a significant part of the local economy and diet.

Tropical Fruits: The tropical lowlands of Arunachal Pradesh, particularly in the districts of Papumpare, East Siang, and Lower Dibang Valley, are ideal for the cultivation of tropical fruits such as bananas, mangoes, papayas, and guavas. The warm and humid conditions in these areas favour the growth of these fruits, which are integral to the region's agriculture. Bananas, including varieties like Cavendish and indigenous types, are grown extensively and are a staple in local diets. Mangoes and papayas, with their rich flavour and high nutritional content, are also widely cultivated and consumed (Prakash et al., 2017).

Indigenous and Lesser-Known Fruits: Arunachal Pradesh is also home to numerous indigenous and lesser-known fruit species that are not commonly found in other parts of India. Fruits like wild apple (*Docynia indica*), persimmon (*Diospyros kaki*), and bayberry (*Myrica esculenta*) are native to the region and hold significant cultural and nutritional value. These fruits are often used in traditional medicine and local culinary practices. The biodiversity of these indigenous fruits contributes to the overall ecological balance and provides a unique aspect to the fruit diversity of Arunachal Pradesh.



2. Diversity of Vegetable Crops in Arunachal Pradesh: The indigenous varieties of vegetables in Arunachal Pradesh include leafy greens, tubers, and legumes, each with unique characteristics and uses. Popular leafy vegetables include spinach, mustard greens, and various species of amaranth. Tubers like sweet potatoes, taro, and yams are staple components of the diet. Legumes such as soybeans, black beans, and cowpeas are also widely grown. These crops are often intercropped with other staples like rice and maize, promoting biodiversity and reducing the risk of

crop failure. The traditional cultivation practices emphasize minimal use of chemical fertilizers and pesticides, relying instead on organic manure and natural pest control methods.



3. Diversity of Spice and Medicinal in Arunachal Pradesh:

Spice Crops in Arunachal Pradesh: Arunachal Pradesh is home to several indigenous spice crops that contribute to its vibrant agricultural landscape. One of the prominent spices grown in this region is large cardamom (*Amomum subulatum*), locally known as "Elaichi" (Husen., 2024). This spice thrives in the cool, moist conditions of the lower Himalayan foothills and is a major cash crop for local farmers. Its high demand, both domestically and internationally, provides a significant source of income. Additionally, the state cultivates ginger (*Zingiber officinale*), which is valued for its pungent flavor and medicinal properties. The unique soil and climatic conditions of Arunachal Pradesh yield a high-quality ginger with a distinct taste, making it popular in markets across India (Modi et al., 2020). Other notable spices include turmeric (*Curcuma longa*), known for its bright yellow color and therapeutic properties and Chilli peppers (*Capsicum spp.*) are also widely cultivated, adding to the state's agricultural diversity. Varieties of chilli like the Bhut Jolokia, one of the hottest chilies in the world, are native to this region and are integral to both local cuisine and traditional medicine.



Medicinal Crops in Arunachal Pradesh: The medicinal plant diversity in Arunachal Pradesh is equally impressive, with a vast array of species utilized in traditional healing practices.

- *Rauvolfia serpentina*, commonly known as Indian snakeroot and locally as Sarpagandha, is a significant medicinal plant found in the region. It is used traditionally to treat hypertension and mental disorders and is a source of the alkaloid reserpine, which has established uses in modern medicine.
- *Aconitum heterophyllum*, known locally as "Atees," is another important medicinal herb. It grows in the high-altitude regions of Arunachal Pradesh and is used to treat fever, digestive disorders, and respiratory problems.
- *Swertia chirayita*, known locally as Chirata, which is renowned for its bitter properties and is used to treat a variety of ailments, including malaria and liver disorders.
- *Paris polyphylla*, or "Love Apple," is a rare medicinal plant that is highly valued in traditional medicine for its anti-inflammatory and anticancer properties. The plant is increasingly being researched for its pharmacological potential.
- *Taxus wallichiana*, known locally as Yew, the Himalayan Yew, found in Arunachal Pradesh, is an important source of the anti-cancer drug paclitaxel.



4. Diversity of Floriculture in Arunachal Pradesh:

One of the most striking aspects of floriculture in Arunachal Pradesh is the abundance of orchids. The state is often referred to as the "Orchid Paradise of India" as it is home to about 600 species of orchids, which account for over half of the country's orchid species. Notable genera include *Dendrobium*, *Cymbidium*, and *Paphiopedilum*. These orchids are highly valued both for their aesthetic appeal and commercial viability. The high altitude and moist climate of regions like Tawang and West Kameng provide perfect conditions for these exotic flowers, making them a significant component of the state's floricultural exports (Kumar et al., 2020). The state's rich biodiversity includes numerous species of rhododendrons, particularly in the upper Himalayan ranges. *Rhododendron arboreum*, with its striking red flowers, is particularly prevalent. Other notable floricultural crops include lilies, marigolds, and chrysanthemums, which are widely grown in the mid-altitude regions. The temperate climate of areas such as Bomdila and Dirang is especially conducive to the cultivation of these flowers, which are used extensively in local markets and festivals. The state's floricultural potential is further enhanced by the presence of several endemic species. Arunachal Pradesh's isolation and varied microclimates have given rise to a number of unique plant

species that are not found anywhere else in the world. These endemic species, such as the Blue Vanda (*Vanda coerulea*) and the Lady's Slipper Orchid (*Paphiopedilum fairrieianum*), are highly sought after by horticulturists and plant collectors globally. Conservation efforts are crucial to protect these rare species from over-exploitation and habitat loss.



CONCLUSION

The diversity of horticultural crops in Arunachal Pradesh is a testament to the state's unique ecological and cultural landscape. The varied climatic conditions across different altitudes support a wide range of fruits, vegetables, spices, medicinal plants, and flowers. With continued support and development, Arunachal Pradesh's horticultural sector holds promise for significant growth and sustainability, contributing to the livelihoods of its people and the overall economy of the region. Through various initiatives, Arunachal Pradesh aims to improve cultivation practices, adopt modern farming techniques, and expand market access, ensuring the sustainable growth of its horticultural sector.

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