Cold Desert Apple Orcharding

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Deep in the Himalayas across high mountain passes, lies an extreme place to grow apples. Imagine delicious apples growing at an altitude of 12,139 feet above mean sea level. A place where foreigners would suffer from acute altitude sickness, and the harsh conditions would make life difficult, the locals grow World-class apples out of nothing. Such is the story of the district of Kinnaur and Lahaul Spiti in the Indian state of Himachal Pradesh.

Figure 1. Orchards on cliffs, the epitome of human endeavour, Pooh village.

An Overview of the Indian Apple Scene

Apples were introduced to India by the British in the early 1900's, at which time India was ruled by them, the varieties being the classic Bramleys and Pippins. By the time India achieved Independence in 1947, the first orchards had started to flourish in the hills of Himachal Pradesh and in the valleys of Jammu Kashmir. It was the intervention of Mr. Samuel Evan Stokes, an American living in British India, who felt that the region had the conditions to grow Delicious apples, and he bought five saplings of Starking Delicious from Stark Brothers Nursery. Ever since, the Indian apple market and area under cultivation has grown, with India now being the fifth largest producer of apples in the world.

Figure 2. After the district headquarters of Rekong Peo, the vegetation becomes sparse, and the orchards are the only speck of green on a high altitude, dry, desert, Leo village.

Kinnaur and Lahaul Spiti: The Cold Deserts

Apples are grown in the state of Himachal Pradesh mainly in the Shimla district (elevation 4,500 feet to 7,000 feet) where the terrain consists of gentle hills and deep soils. But the place we are talking about is the tribal areas of Kinnaur and Lahaul Spiti disctrict, (elevation 8,000 feet to 12,000 feet), where the best quality apples in India are grown. The climate is dry and winters are cold, and conditions are somewhat similar to Washington

Figure 3. The farms are mostly located in the lower regions of a peak or valley floor and get glacial water from the top of the peaks year-round, which is used as irrigation, Nako village.

State, only the terrain is more rugged. Heading towards Tabo, after the district headquarters of Rekong Peo, the vegetation becomes sparse and the orchards are the only speck of green on a high-altitude, dry, desert.

Climate

Tabo, the place where most of the pictures are from, has a relatively cold environment with the summers seeing highs of around 30 degree Celsius and lows of 10 degree Celsius. Winters are very cold with temperature as low as -13°F. Being a dry desert, the temperature variation of hot days and cool nights in the spring and summer are favourable for the more anthocyanin formation, leading to intense red color and more typey fruit. Almost negligible rainfall means very few diseases and pest.

Practices

The farms are mostly located in the lower regions of a peak or valley floor, and get glacial water from the top of the peaks year-round, which is used as irrigation. These peaks may have a height of 14,000 to 18,000 feet. Rivers, like Spiti and Satluj, are also present, but that water is not harvested much. Flood Irrigation is mostly practiced by the farmers, with every farmer irrigating the fields once a week.

The only fertilizer they use is farmyard manure and similar. Trees are mostly on seedling rootstocks with Delicious as the main variety and Golden Delicious coming in second. New dwarfing rootstocks are not readly available and are not widely utilized. Most apple trees are large and would remind us of the early 1950's orchards in the US.

The area falls in a rain shadow zone, with minimal rainfall and very low humidity. As a result, most of these orchard growers do not need to use any fungicides.

The high altitudes of 8,000 feet to 12,000 have cold nights and low minimium temperatures in winter. As a result, these apples have practically zero pests and thus no insecticide usage. Although wooly aphids have been reported from some areas of late, these orchard areas of Himachal Pradesh remain cut off from the world during times of heavy snowfall and will probably remain insect free.

Figure 4. Standard Delicious growing well in Tabo.

Figure 5. The Himalayas run across northwest India and through the state of Himachal Pradesh. The capital Shimla is on the foothills of the Himalayas. The region of Tabo lies on the rain shadow area. The Tibetan Highlands can be seen to the east and the fertile Indian plains to the south.

For the most part, the apples in this region are all natural and hence the fruit has no russetting. The majority of the precipitation is in the winter as snowfall. No plant growth regulators are used is used, yet the fruit has outstanding typiness. There are minimal temperature variations during the growing season.

Conclusion

The fruit grown in this region is considered to be the best in India. Growers receive a premium price as compared to growers from Shimla area. These Kinnaur region apples retail at $1.35 per pound in retail stores, as compared to Shimla apples which retail for around $0.90 for a pound. Washington State apples retail for $2.25 per pound in India. Chinese Fuji apples go for $2.25-$2.50 per pound. The cost of production of apples for an Indian grower is around 30% of the market price.

Local Folklore

Apart from being an extremely beautiful place and the home for excellent apples, the region also is famous for its various Buddhist shrines, pine nuts, and traditional handicrafts. Located on the proximity of the Tibetan highlands, a lot of influence is found on the architecture of the place. Life is tough at such places, but the place is the epitome of human endeavour.

Kunal Chauhan, General Secretary, Progressive Growers Association (PGA) India. A group of 100+ young farmers (mostly under 35) who have left other careers to pursue the life of an apple grower. His orchard is in the Kotkhai region of Shimla district and mainly grows apples and pears.

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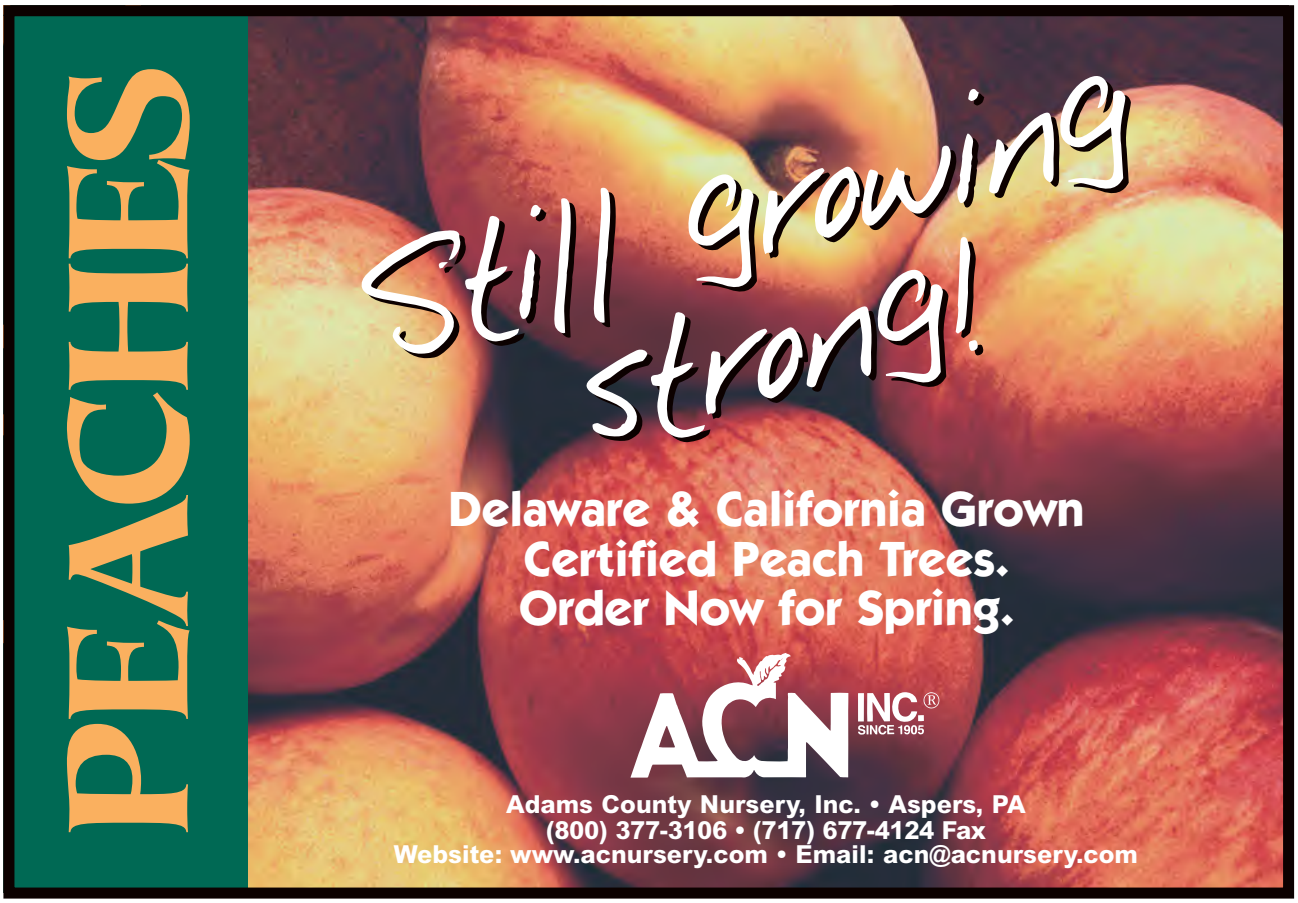

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