



## Kiwi Cultivation in Arunachal Pradesh

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### INTRODUCTION

The Kiwifruit or Chinese's gooseberry (*Actinidia deliciosa Chev.*) is a valuable introduction to Indian Himalayan region. Kiwi have been well adopted and contributing in the National economy through domestic consumption and export since last four decades. In India, Kiwi is mostly grown in Jammu Kashmir, Himachal Pradesh, Sikkim, Meghalaya, Arunachal Pradesh, Uttar Pradesh and kerala. Kiwi is one of the most important fruit crop grown in Arunachal Pradesh. The State is the largest producer of Kiwi in India accounting for 56% (4800 tons) of the total production, followed by Nagaland (2400 tons), Mizoram (1030 tons), Himachal Pradesh (260 tons) and parts of Sikkim, Manipur and Jammu Kashmir however India imports 75% of its domestic demand for fresh kiwis.

Scientific Name : *Actinidia deliciosa Chev*

Family : Actinidiaceae

Origin : Central China

Kiwi is also known as China's miracle fruit and as Horticultural wonder of New Zealand.

### Nutritional value per 100 g

Energy	255kJ(61 kcal)
Carbohydrates	14.66 g
Sugars	8.99 g
Dietary fibre	3 g
Fat	0.52 g
Protein	1.14 g
<b>Vitamins</b>	
Vitamin A	122 µg
Thiamine (B1)	0.027 mg
Riboflavin (B2)	0.025 mg
Niacin (B3)	0.341 mg
Pantothenic acid (B5)	0.183 mg
Vitamin B6	0.063 mg
Folate (B9)	25 µg
Choline	7.8 mg
Vitamin C	92.7 mg
Vitamin E	1.46 mg
Vitamin K	40.3 µg
<b>Minerals</b>	
Calcium	34 mg
Iron	0.31 mg
Magnesium	17 mg
Manganese	0.098 mg
Phosphorus	34 mg
Potassium	312 mg
Sodium	3 mg
Zinc	0.14 mg

Source: USDA Nutrient Database

#### Varieties:

There are several varieties of kiwi grown in India *viz.* Abbott, Allison, Bruno, Hayward, Monty and Tomuri, out of which, four major varieties are widely grown in the cluster, namely Hayward, Monty, Allison and Bruno.

#### Propagation:

Kiwi fruit can be propagated by seed, cuttings, grafting and budding and micro-propagation.

#### Agro-climatic condition:

Kiwi cultivation requires high altitude ranging from 800 m to 1500 m above mean sea level and 700-800 chilling hours for good ripening with well-distributed rainfall of 1500 mm over the year. A deep yellow-brown loamy soil which is well-drained and fertile is ideal for kiwi farming.

#### Planting:

Flat land with gentle slope is ideal for planting of kiwifruit. Plant spacing varies based on the cultivar grown, fertility status of the soil and training system followed. In general planting is done at a spacing of 6 meter from plant to plant and 4 meter from row to row in vigorous varieties like Allison and Abbot, which are to be trained with T- bar trellis system, whereas Hayward which is less vigorous therefore planted at a spacing of 5 m x 5 m. In pergola system of training, planting is done at a spacing of 6 m x 6 m. Planting is done during dormant season (December to February).

#### Training and Pruning:

The supporting frames should be erected immediately after planting or even before

planting. A number of training structures like Kniffin, T-bar trellis and Pergola systems are used for training a vine, but latter two systems are more popular and commonly used.

The weakly grown or diseased branches should cut off for the growth of strong and leader branches. Proper and scheduled training and pruning ensures appropriate exposure to sunlight and supply of nutrients. The vines can become overcrowded if not pruned. Pruning is done twice a year during summer and winter season to maintain balance between vine growth and fruit production.

#### **Thinning:**

Thinning is required to improve size and quality of fruits. Hand thinning is the most widely accepted method. Hand thinning to 4-6 flower buds/fruitlet shoot as it resulted in higher production of 'A' grade fruits along with good fruit quality resulted highest benefits under Himachal Pradesh. Further, they advocated the removal of lateral flowers as it always produce smaller size fruits.

**Irrigation:** Due to vigorous vegetative growth and larger leaf area the water requirement of kiwi is very high. Water stress especially after fruit set and summer season, reduces fruit size, yield and quality of fruits. In the summer month, water requirement of vine is more which is 145-180L/day. Young tree should be irrigated at 2-3 days intervals, whereas bearing trees are to be irrigated at 5-6 days intervals during summer month with basin methods of irrigation.

**Fertilizers:** In general, a basal dose of 20 kg FYM along with 0.5 kg of NPK fertilizer mixture containing 15 per cent N should be applied each year under Indian conditions. Full dose of P and K along with FYM should be applied in December- January and half of N should be applied one month before flowering and remaining half one month after fruit set.

**Harvesting:** The fruit mature earlier at lower elevation than at higher altitude because of the

variation prevailing in the temperature. The fruits can be harvested from last week of November to the last week of December at higher elevation whereas it can be plucked in mid of October to last week of November at lower elevation. It is harvested by snapping their stalks. Mechanical harvesting is not advisable as the fruits bruise easily.

**Yield** 50-100 kg per vine.

#### **CONCLUSION**

Kiwi is one of the most traded fresh fruit with export and import potential. Hilly areas generally encounter several challenges with regard to agricultural production apart from limitations of transportation and communication and limitations with regard to production of fewer & selective crops including fruits unlike plain areas. Therefore, the production of kiwi fruit in the hilly state like Arunachal Pradesh paves the way towards becoming a booming business of tomorrow counting on the demand and expansion of the areas under kiwi. Thus, there is a huge scope to uplift kiwi production in northeastern states in general, and Arunachal Pradesh in particular.

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