Horticultural Zones of India
Temperate Zone

- Temperate regions - where the temperature falls below freezing point during the winter.
- In general, the temperate regions include the states of J& K, H.P., Uttarakhand and NE states,
Temperate fruits

- Fruits grown in the temperate regions.
- Temperate fruit trees shed their leaves during the winter and enter the rest period.
- A definite chilling temperature is required to break the rest period or dormancy.
- Plants can tolerate both diurnal and seasonal fluctuation of temperatures.
- Temperate fruits - Apple, Pear, Peach, Nectarine, Plum, Apricot, Almond, Cherry, Walnut, Kiwifruit, Pecan nut, Persimmon etc.
Sub-Tropical Zone

- Sub-Tropical Zones - where the temperate occasionally goes below freezing point but not as a rule below 25°C.
- Overall climate is hot and comparatively dry, whereas, the winters are less cold.
- Chief regions of sub-tropical zone - Punjab, Haryana, U.P., North districts of Bihar, West Bengal, M.P., Rajasthan, and Assam.
Sub-Tropical fruits

- Fruits commercially successful in Sub-Tropical Zones
- The plants may be deciduous or evergreen and usually withstand cold but not the frost
- Sub-tropical fruits - sweet orange, mandarin, grapefruit, lime, lemon, litchi, grape, guava, phalsa, fig, pomegranate, avocado.
- Tropical fruits like Mango and Banana can also be grown in this zone, whereas, the low chilling cvs. of Peach, Pear, Plum, and Almond of temperate zones can also be grown in sub-mountainous tracts of sub-tropical zone.
Tropical Zone

- Regions having hot and humid climate in summer and mild in winter.
- Less fluctuations of diurnal temperatures and light and dark periods.
- This zone includes the regions: Maharashtra, Karnataka, A.P., T.N., Kerala, Southern districts of M.P. and West Bengal.
Tropical fruits

- Fruits grown in tropical areas/zone.
- Most commercial fruits: Mango, Banana, Sapota, Pineapple, Papaya, Pomegranate, Grapes, Cashew nut etc.
- This zone includes the regions of Maharashtra, Karnataka, A.P. Tamilnadu, Kerala, southern districts of M.P. and West Bengal.
Horticultural Zones of Himachal Pradesh

Sub-tropical sub-montane and low Hills
Sub-temperate sub humid mid hills
Wet-temperate high hills:
Dry Temperate hills and cold deserts:
Zones of fruit growing in the State

- Sub-tropical sub-mountainous and low hills. (Zone I)
- Sub-temperate sub humid mid hills (Zone II)
- Wet temperate high hills (Zone III)
- Dry temperate high hills and cold deserts (zone IV)
Zone I: **Sub-tropical sub-mountainous and low hilly zone.**

- Areas upto 914 m amsl such as Una, Kangra, Chamba, Sirmaur, Solan, etc.
- Soil - sandy loam to loamy sand.
- Rainfall near about 100 cm / annum.
- About 40 % of the cropped area of the state.
- 83% of total cropped area in this zone is rainfed.
Zone I: Sub-tropical sub-mountainous and low hilly zone.

- Zone suitable for the cultivation of mango, citrus, litchi, loquat, guava, papaya, and low chilling cvs. of peaches and plums.
Problems in zone I

- Rainfall causing soil erosion
- Erratic rainfall distribution
- Low inherent soil fertility
- Low moisture retention capacity of the soil
Zone II: - *Sub-temperate sub humid mid hills*

- Hills with elevation ranging from 915 to 1523 m amsl such as mid hills of Solan, Shimla Chamba, Mandi, Kullu, and Kangra districts.
- Moderate to heavy monsoon rains and mild temperate climate.
- Soil is neutral to acidic, sandy loam – clay loam.
- Rainfall near about 100-300 cm/annum.
- About 37% of the cropped area of the state.
- 76% of the total cropped area in this zone is rainfed.
- Zone suitable for the cultivation of stone fruits, pome fruits, walnut, lemon, galgal, pomegranate, olive, kiwi, strawberry etc.
Problems in Zone II

- Run off soil erosion
- Soil acidity and clod formation
- Low temperature in winter
- High weeds and diseases
Zone III: *Wet temperate high hills*

- High hilly moist zone with elevation from 1524 to 2472 m amsl i.e. the higher reaches of Shimla, Mandi, Kullu, Sirmaur and Chamba.
- Soil - neutral to acidic
- Climate - humid temperate
Zone III: *Wet temperate high hills*

- About 22% of the cropped area of the state
- 93% of the total cropped area in this zone is rainfed.
- Most suitable fruit crops in this zone: pome fruits.
Problems in Zone III

- Land slide area
- Shallow soil depth
- Sub-optimal temperatures
- Periodic moisture stress to the crops
- Lack of irrigation facilities
- Poor road network and marketing problem
Zone IV :- **Dry temperate high hills and cold deserts**

- High altitude dry zone in the northwest above 2472 m amsl comprising of Lahaul-spiti, Kinnaur and Bharmaur areas of Chamba Districts.

- Low rainfall during summer (250-400 mm) with heavy snowfall (3-5 m) during winters.
Zone IV: *Dry temperate high hills and cold deserts*

- Comprises of about 2% of the cropped area of the state.
- 60% of the total cropped area in this zone is rainfed.
- Soil has coarse texture having neutral pH.
- Apple is the main crop besides pear, nuts, prunes, grapes and even drying cvs. of apricot etc.
Problems in zone IV

- Land slides
- Short growing season - May – October
- Loose strata
- Shallow soil depth
- Lack of vegetative cover
- Very low temperatures