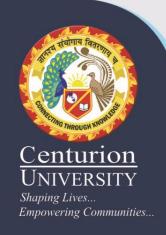


# CLIMATE AND SOIL FOR HORTICULTURE CROPS

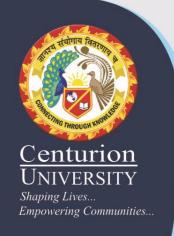


# **CLIMATE:**

Climate is the most important factor on which choice of the crop for a region depends and therefore, understanding about climate and its requirement for different crops for optimum production on sustainable basis is important for horticulturists.

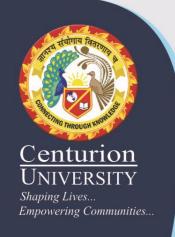
# Light

- The light intensity can be estimated from the number of hours of bright sunlight or from the cloudiness of sky.
- Generally horticultural crops need a lot of light and must be grown in sunny climate, but there are some crops which can tolerate shade e.g. turmeric and ginger
- ■There are others like young mangosteen, coffee, cocoa and tea need shade during part of their development.
- A third group requires permanent shade like salak palm, duku, and carambola



Based on temperature variation on surface of earth climate is classified broadly into three categories

- a) Tropical- Climate with no distinct winter
   Eg: Mango, Banana, Papaya, Sapota, Pineapple, Coconut,
   Cashew, Arecanut, Breadfruit, Jackfruit and Avocado
- **b) Subtropical** Climate with distinct summer and winter Eg: Guava, Grape, Citrus, Date palm, Phalsa, Pomegranate, Litchi and Loquat
- c)Temperate- Distinct winter, summer and autumn with temperature below freezing during winter is common. Eg: Apple, Pear, Peach, Plum, Quince, Apricot, Walnut, Almond, Strawberry and Cherry

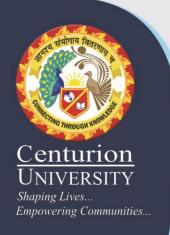


Based on the response by plants are classified as follows:

- Long day plants: Cabbage, Cauliflower, Onion, Beet, Radish, Carrot, Spinach, Potato, Dill and Plantago.
- Short day plants: Strawberry, Pineapple, Chrysanthemum, Poinsettia, Aster, Balsam, Salvia, Euphorbia and Xanthium.
- Day neutral plants: Tomato, most fruit crops, Pepper, Cucumber, Snapdragon, Mirabilis and certain varieties of peas







# SOIL:

Soils in India are classified into 8 categories:

- Alluvial Soil
- Black cotton soil
- Red soil
- Laterite soil
- Forest/Mountaineous soil
- Arid or Desert soil
- Saline and alkali soil
- Marshy soil

# Alluvial soil:

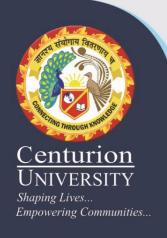
 Found in the valleys of the Narmada, Tapi and in the Eastern and Western coastal plains.

UNIVERSITY These soils are mainly derived from the debris brown from the Shaping Lives... Empowering Communities ...limalayas.

- This soil is well-drained and poorly drained with an immature profile in undulating areas.
- This soil has potash deficiency.
- The colour of soil varies from light grey to ash

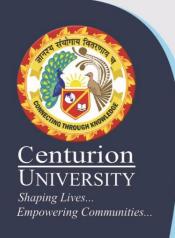
#### Red soil:

- They are mainly found in the Peninsula from Tamil Nadu in the south to Bundelkhand in the north and Raj Mahal in the east to Kathiawad in the west.
- This soil is also known as the omnibus group.
- The presence of ferric oxides makes the colour of soil red. The top layer of the soil is read and horizon below is yellowish.
- •Generally, these soils are deficient in phosphate, lime, magnesia, humus and nitrogen.
- ■This soil is good for the cultivation of wheat, cotton, pulses, tobacco, millets, orchards, potato, and oilseeds



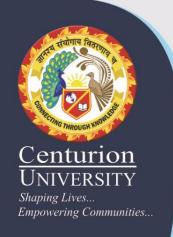
### Black soil:

- Black soil is also known cotton soil.
- This soil is formed from rocks of cretaceous lava. This stretch over the parts of Gujarat, Maharashtra, Western parts of Madhya Pradesh, North- Western Andhra Pradesh, Karnataka, Tamil Nadu, Rajasthan, Chhattisgarh, Jharkhand up to Raj Mahal hills.
- The soil is rich in iron, lime, calcium, potash, magnesium and aluminium.
- It has high water retaining capacity and good for the cotton cultivation, Tobacco, citrus fruits, castor, and linseed.



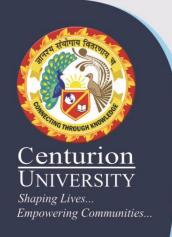
#### **Desert soil:**

- Soil is deposited by wind action and mainly found in the arid and semi-arid areas like Rajasthan, West of the Aravallis, Northern Gujarat, Saurashtra, Kachchh, Western parts of Haryana and southern part of Punjab.
- They are sandy with low organic matter.
- It has low soluble salts and moisture with very low retaining capacity.
- •If irrigated these soil give a high agricultural return.
- ■These suitable less water requiring crops like Bajra, pulses, fodder, and guar.



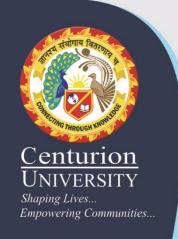
#### Laterite soil:

- Found mainly in the hills of the Western Ghats, Raj Mahal hills, Eastern Ghats, Satpura, Vindhya, Odisha, Chhattisgarh, Jharkhand, West Bengal, North Cachar Hills, and the Garo hills.
- ■These are poor in organic matter, nitrogen, potassium, lime and potash.
- ■These iron and aluminium rich soils are suitable for the cultivation of rice, ragi, sugarcane and cashew nuts.



#### **Mountain Soil:**

- These soils have less developed soil profile and mainly found in the valleys and hill slopes of Himalayas.
- These soils are immature and dark brown in colour.
- ■This soil has very low humus and it is acidic in nature.
- ■The orchards, fodder, legumes are grown in this soil.

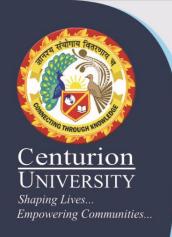


#### **Red Soil:**

- Granite, gneiss and quartzite of Precambrian and Archean era.
- This soil performs well if irrigated.
- Generally, this soil has very less productivity.

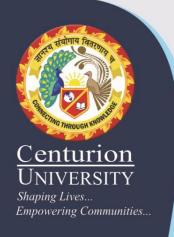
# **Marshy Soil:**

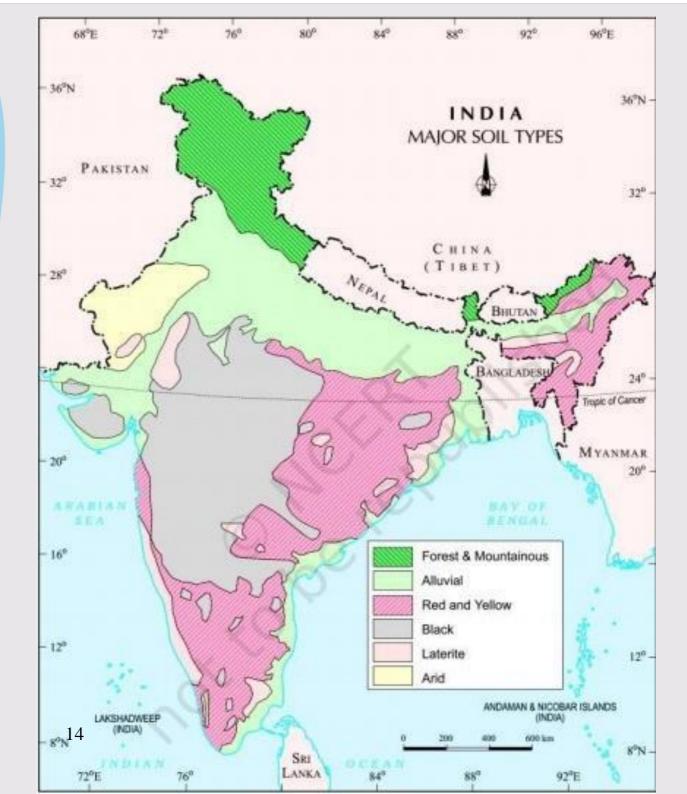
- Soil originates from the areas where adequate drainage is not possible.
- It is rich in organic matter and has high salinity. They are deficient in potash and phosphate.
- ■These mainly found in Sunderbans delta, Kottayam, and Alappuzha districts of Kerala, Rann of Kachchh, deltas of Mahanadi etc.

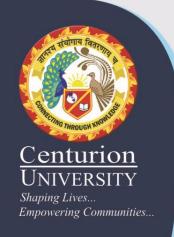


## Saline and alkali soil:

- Theses also called as Reh, Usar, Kallar, Rakar, Thur and Chopan.
- •These are mainly found in Rajasthan, Haryana, Punjab, Uttar Pradesh, Bihar and Maharashtra. Sodium chloride and sodium sulphate are present in this soil.
- It is suitable for leguminous crops.







# THANK YOU