

Soil:

soil and its composition

classification of soils



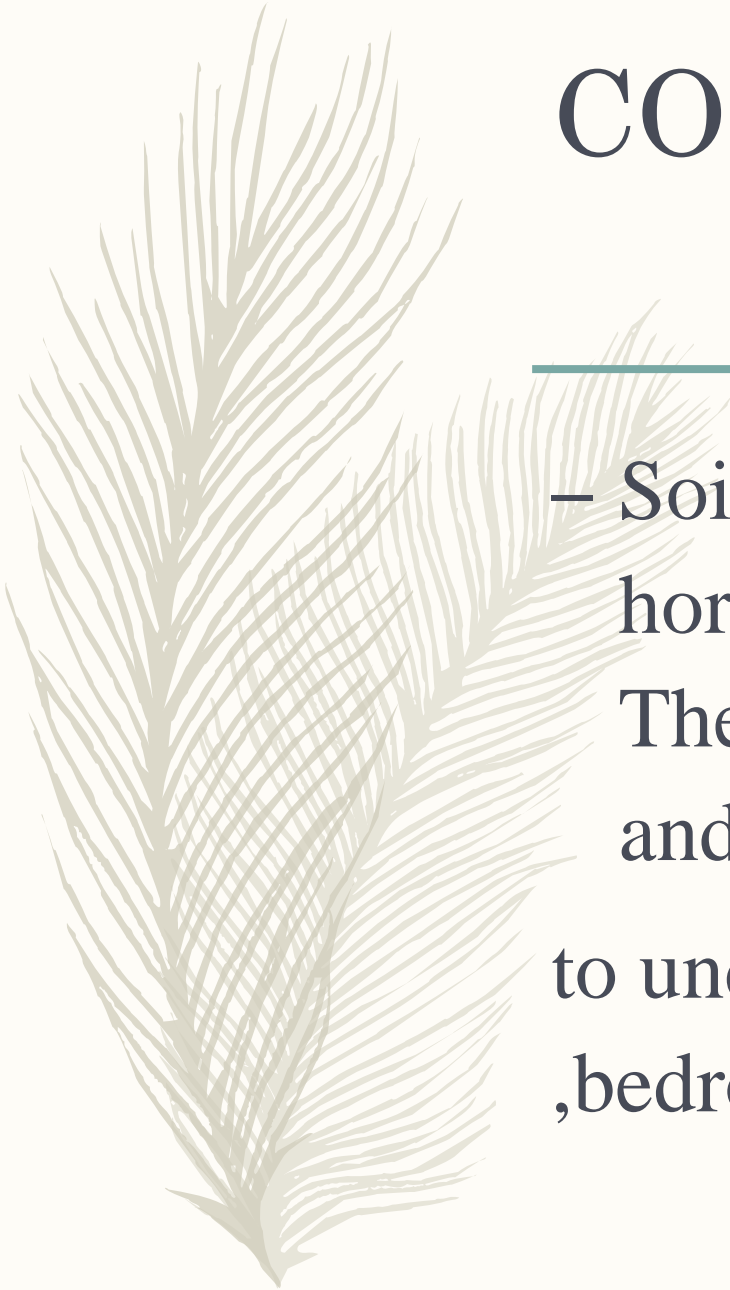


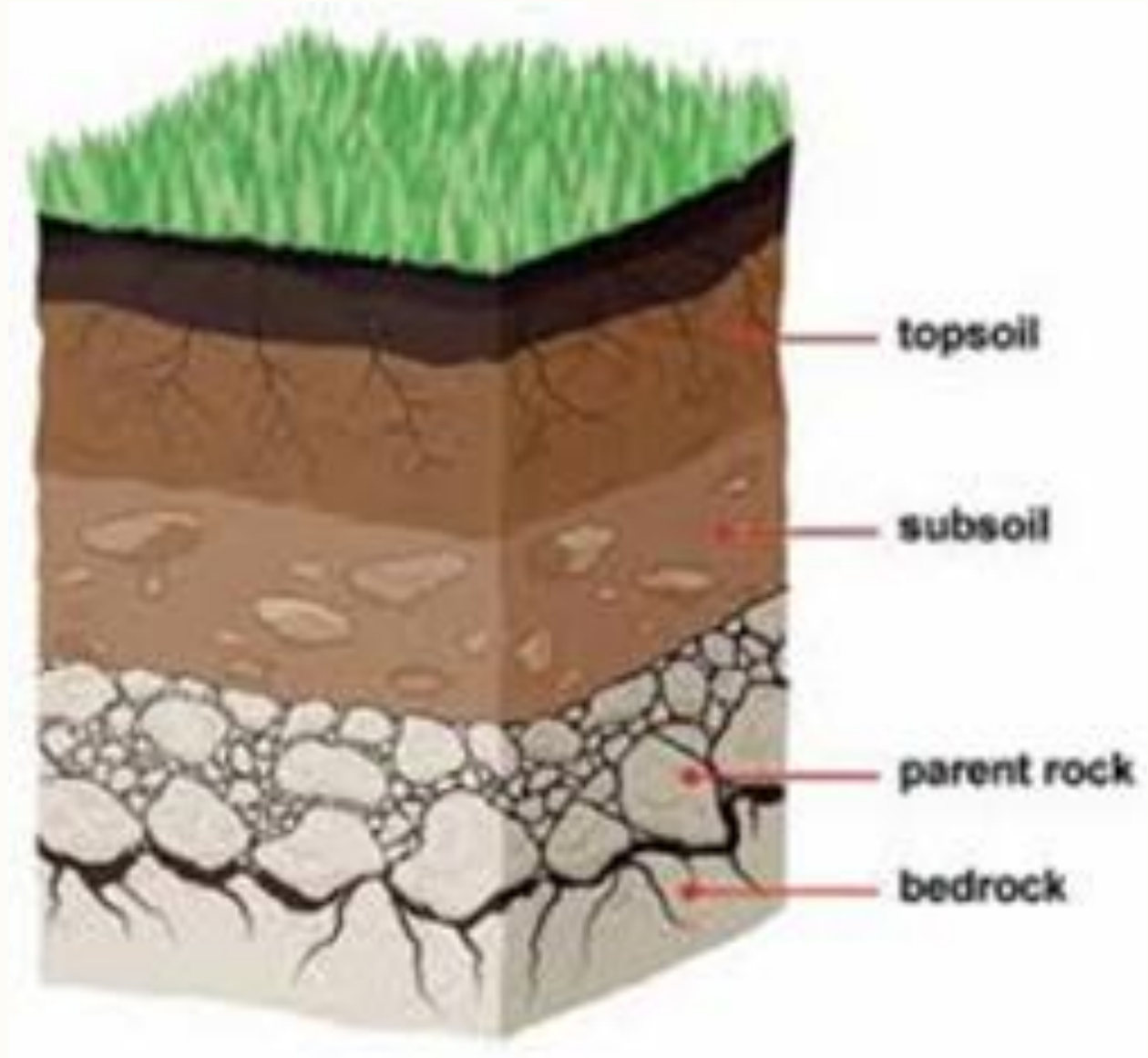
soil

- ❖ Soil is a mixture of minerals , organic matter , gases ,liquids , and the myriad of organisms that together support plant life . soil is highly heterogeneous in nature.
- ❖ It is a natural body that exists as part of the pedosphere and which performs four important functions , it is a medium for plant growth ; it is a means of water storage ,supply , and purification; it is a modifier of the atmosphere; and it is a habitat for organisms that take part in decomposition of organic matter and the creation of a habitat for new organism.

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- Soil horizons(layers) soil is made of distinct horizontal layers; these layers are called horizons. They range from rich ,organic upper layer(humus and topsoil) to underlying rocky layers (subsoil, regolith ,bedrock).





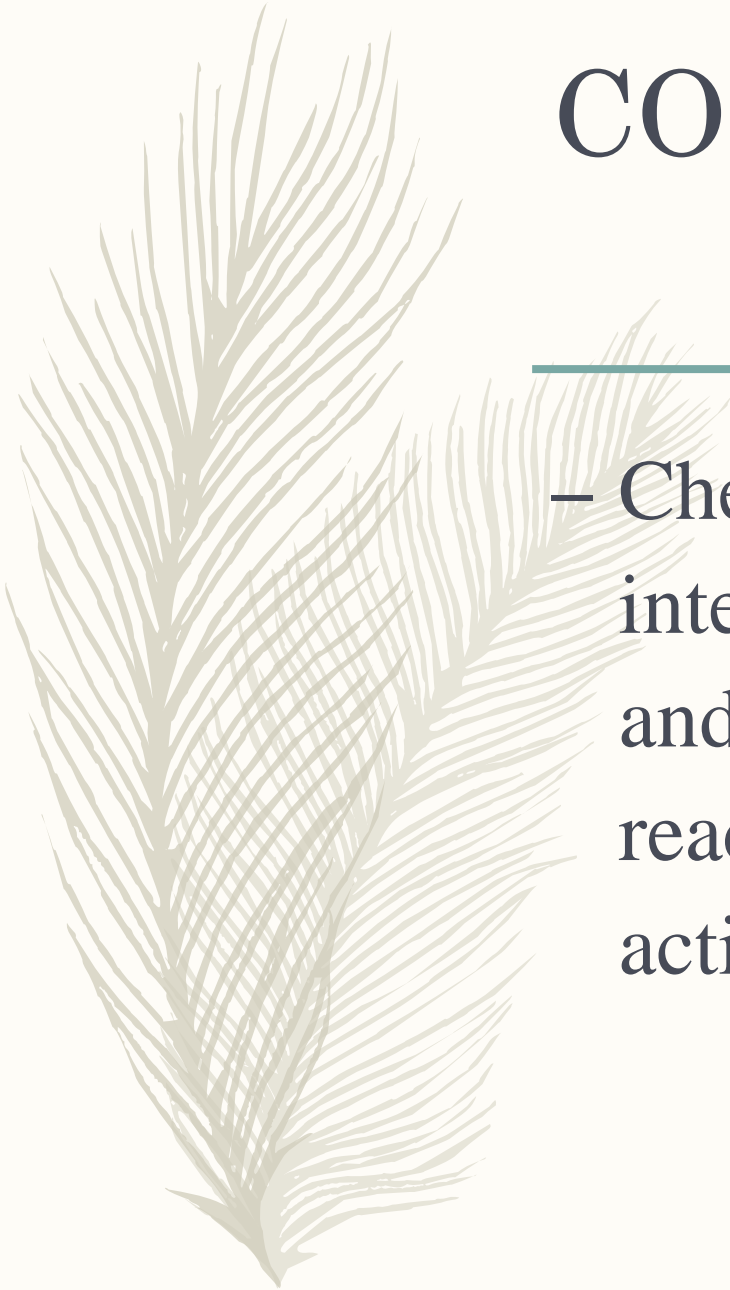


formation of soil

- Physical weathering : Weathering is the mechanical or chemical process by which rocks are broken down ,into smaller pieces.as rocks are broken down ,they mix with organic material ,which are those materials that originate from living organisms.
- Biological weathering :it takes place as a result of activities of living organisms.it can be combined with chemical processes like chemosynthesis of bacteria.

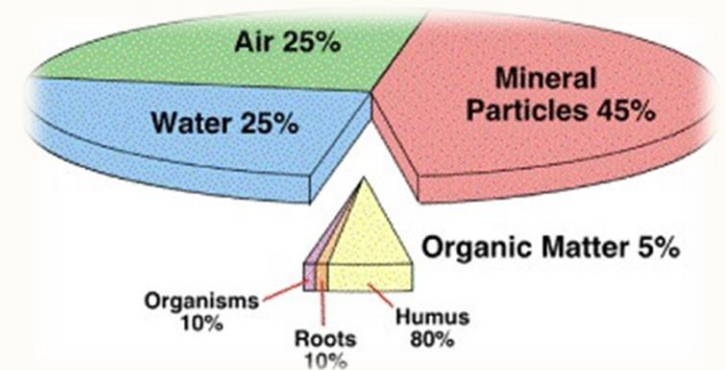
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- Chemical weathering:- result of chemical interaction between water and atmospheric gases and the bed rock of the region , like oxidation reaction with O_2 and hydrolysis with H_2O and acid action with acid like $H_2CO_3, H_2CO_4, H_2SO_3$)



Composition of soil

- Soil composition is an important aspect of nutrient management. While soil minerals and organic matter hold and store nutrients, soil water is what readily provides nutrients for plant uptake.



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- Soil air , plays an important role since microorganisms in soil needs air to undergoes the biological processes that release additional nutrients into the soil.
- Soil consists of approx. 45% mineral particles, 25% air and 20-30% water and 5% organic matter and 80% humus and 10% roots and 10% organism.





Classification of soil:-

soils can be classified into:

- Sandy soil
- Clay soil
- Silt soil
- Peat soil
- Chalk soil
- Loamy soil

Sandy soil:-



- Sandy soil are light ,warm , dry and tend to be acidic and low in nutrient.
- Desert soil is mostly sandy soil found in low rainfall regions.
- Sandy soil have quick water drainage ,they are often known as light soil due to the high proportion of sand and little clay.
- This soil type has the biggest particles and the bigger size of the particles in a soil the better is aeration and drainage of the soil . this soil is granular and consists of rocks and mineral particles that are very small.

Clay soil:-



- Clay soil are heavy soil that benefit from high nutrients , and it remains wet and cold in winter and dry out in summer.
- They cover the plateaus of Maharashtra , Malwa , Madhya Pradesh , Chattisgarh and extend in south east direction along Godavari and Krishna valleys.
- These soil made of over 25% clay and spaces found between clay particles.
- Clay soil hold a high amount of water and this drains slowly and take long time to warm up in summer.

Silt soil:-



- Silt soil are light and moisture retentive soils with a high fertility rating.as silt soils comprise of medium sized particles they are well drained and hold moisture well.
- This soil found near the river ,lake , and other waterbodies . These soil also used in agricultural practice to improve soil fertility.
- As the soils particles are fine , they can be easily compacted and are prone to washing away with rain.

Peat soil:-



- peat soil are highly organic matter and retain a large amount of moisture.
- It is generally found in marshy areas . this soil is formed by the accumulation of dead and decayed organic matter , this naturally contain more organic matter than most of the soils.
- This soil is very rarely found in a garden and often imported into a garden to provide an optimum soil base for planting.

Chalk soil:-



- This soil is rich in calcium carbonate , potash , lime , magnesium carbonate and has poor phosphorus content.
- It is mostly found in area such as gujurat , madhyapradesh ,and maharastra .it is also found in states like tamilnadu , andhrapradesh and Karnataka.
- This soil can be either light or heavy but always highly alkaline due to calcium carbonate in structure , and these soils will not support the growth of ericaceous(acid lover) plants that require acidic soil to grow.

Loam soil:-



- Loam soil is found in a majority of successful farms in regions around the world known for their fertile land. In Punjab ,hariyana ,u.p. , and bihar this type of soil is found.
- Loam soils are the mixture of sand ,silt , and clay that are combined to avoid the negative effect of each type.
- As the soils are perfect balance of soil particles . They are considered to be a gardeners best friends , but still benefit from topping up with additional organic matter.
- This soil provide good drainage.



THANK YOU