

Notes on

West Bengal Soil (পশ্চিমবঙ্গের মৃত্তিকা)



Soil is the natural medium for the growth of plants under favourable conditions. Thorough knowledge of soil is essential to understand its behaviour towards vegetation. The type of natural vegetation is an expression of the prevailing soil condition. Any change in soil condition is reflected on vegetation types.

Soils of West Bengal

In an agrarian economy dominated livelihood system, soil happens to be the first stage determinants to prioritize the choice for crop selection and productivity.

The soil of West Bengal is broadly divided into four types - Mountain soils, Alluvial soils, Red soils and Saline soils.

As per the recent studies by the Department of Agriculture soil is categorized into six groups based on analysis of soil profile for:

1. Mountain and Forest Soil
2. Old Alluvial soil
3. New Alluvial soil
4. Red Soil
5. Laterite Soil
6. Saline Soil

1. Mountain and Forest Soil

The Northern region of West Bengal has mountain soil. This soil is formed by the process of weathering of igneous and metamorphic rocks.

- It is less fertile and black in colour.
- The soil is suitable for tea, pineapple, oranges and pears cultivation.
- It is present at an elevation of 2550 m in Darjeeling and Kalimpong districts.
- The region below the mountains, i.e. the duars, are thick forests that consist of forest soil.
- The forest soil has acidic humus and low base exchange capacity.
- In some areas, the forest soil is often sandy and gravelly, much coarser than the soils of the plains.
- It is present in Alipurduar, Jalpaiguri and Coochbehar districts. Forest soil is also called Terai soil since it is present in the Terai region.

2. Old Alluvial

This soil is of comparatively old age and is also called Bhangar. This soil is distributed in the tract lying North of the Ganga containing the districts of North, South Dinajpur, Malda, Eastern Birbhum and some parts of Murshidabad, Bankura and Birbhum.

- It is suitable for paddy, wheat and sugarcane cultivations.

- This soil is clayey in texture, acidic, rich in potash and phosphorus and has a moderate amount of nitrogen and humus.
- The Barind area of Bengal consists of quasi lateritic alluvium.

3. New Alluvium

This soil is comparatively newer than old alluvium and is also called Khadar. This soil is found along the banks of the rivers.

- The soil is sandy loam to clayey in texture.
- New alluvium soil is located in the plains of West Bengal, South of the Bhagirathi river upto the mouth of the Hooghly river. Murshidabad, Nadia, Howrah and North 24-Parganas consist of new alluvium soil.
- It is suitable for paddy, wheat and jute cultivation.
- This soil is very fertile as new organic material is deposited during floods that make the soil more fertile.
- The soil has high humus content, high water holding capacity and is less acidic.

4. Red Soil

This soil is found in the districts of Birbhum, Bardhaman, Bankura, Midnapore, some parts of Malda and Dinajpur.

- The presence of ferrous oxide makes the soil red, reddish-brown or red-black in colour.
- This soil has low water holding capacity. It is deficient in nitrogen, phosphate and high in potash and lime.
- This soil is mildly acidic and requires nitrogenous and phosphatic manuring.
- This soil is infertile in nature.
- Agriculture in this soil is practiced with the help of irrigation. Paddy is the chief crop grown in this soil.

5. Laterite Soil

This soil is found in the Western plateau region. This soil is found in the districts of Birbhum, Bardhaman, Bankura, Purulia, Midnapore, some areas of Braj and Madhupur forest areas.

- This soil is red in colour.
- This soil is infertile, but with proper irrigation, little vegetation can be done in this soil.
- The laterite soil is acidic, poor in organic matter, calcium, phosphates and nitrogen.
- Soil erosion leaching makes this soil infertile.

6. Clayey Saline Soil

The Sundarbans and the coastal areas of the state have this type of soil.

- The soil is bluish in colour.
- It is acidic and has very loose particles due to excess organic matter.

- This soil is not suitable for cereal crop cultivation as it lacks the essential nutrients.
- It is ideal for the cultivation of plantation crops such as coconut, betel nut and watermelon.
- It remains wet and saline for the most part of the year.
- This type of soil is present in the southern part of South 24 Parganas and Midnapore.

7. Soil Erosion in West Bengal

Soil erosion is the removal of the top layer of soil by different agents like wind, running water etc. Many human-made factors cause soil erosion such as deforestation, overgrazing, faulty ways of agriculture, shifting cultivation etc.

In West Bengal, around 20% of the land is degraded due to soil erosion and rendered unfit for agriculture. Major causes of soil erosion and preventive measures in West Bengal are:

- Sloping topography and heavy rainfall in the districts of Darjeeling, Kalimpong, Jalpaiguri, Alipurduar and Coochbehar.
- Landslides, deforestation, shifting cultivation and excess siltation in mountain rivers increase the erosion of mountain and forest soil.
- Annual floods, waterlogging, prolonged wet and dry spells of rainfall, deforestation, faulty ways of cultivation are the leading causes of soil erosion in delta plains of West Bengal.
- Coastal areas Waterlogging, high salinity, very poor water retention capacity, tidal waves, coastal runoff, excess siltation of rivers are the main causes of soil erosion in the coastal regions of West Bengal.

Preventive measures for soil erosion:

- Cultivation along the hill slopes
- terrace farming afforestation
- afforestation
- construction of dams
- strip cropping
- creating shelterbelts
- construction of drainage canals
- raising sea embankments
- making sea dykes
- planting trees (silviculture), etc.

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