



Feel the strength of our land

Potential of Lankan soils to feed the nation

BY ABHAYA KENDARAGAMA

The soils of Sri Lanka have greatly supported an ever-dominant agrarian economy in this country since ancient times. Wonderfully, though it is a small island, out of 10 major soils in the world, 7 occur in this golden earth illustrating the great diversity of our landmass.

Soil can be briefly described as a dynamic natural body composed of mineral and organic materials and living organisms in which plants grow. It provides the starting point for successful and productive farming. On the other hand, it underlies the foundation of houses and other buildings, provides beds for roads inclusive of highways, absorbs waste from sewage systems in urban areas and influences the length of life of all these arteries. Thus, soil is an important natural resource not only for rural farmers but also among urban dwellers.

This article is intended to introduce the major agricultural soils for farmers as well as urban dwellers and inform them of the food production potential and their contribution to ensuring national food security for Sri Lanka. A brief description of 14 major soils is presented below as a booster dose of information for the general public in this country.

Reddish Brown Earth soils

Reddish Brown Earth soils, the most widespread soils in the country, occur in uplands occupying the crests and upper to middle slopes on undulating terrain in districts namely Anuradhapura, Polonnaruwa, Vavuniya, Moneragala, Hambantota and considerable parts of the adjacent districts.

They are best expressed in areas such as Medawachchiya, Anuradhapura, Maha Illuppalam, Walawe and Elayapattuwa.

The characteristic reddish-brown to dark reddish-brown color makes them easily recognisable. For example, they are easily observed by the general public in uplands around Helabojun Food Court at Pelwehera near Dambulla city.

Owing to their sandy clay loam texture, these soils are suitable for growing a wide range of field crops such as maize, finger millet, green gram, black gram, cowpea, ground nut, soybean, sesame, chilli, and big onion; vegetable crops such as beat, bitter gourd, brinjal, capsicum, cucumber, kekiri, long bean, okra, pumpkin, reddish, ridge gourd, snake gourd, and thibbotu; fruit crops such as banana, dragon fruit, grapes,

guava, lime, mango, orange, papaw, pomegranate, watermelon and wood apple; and other crops such as sugarcane. They are also excellent for growing rice with the provision of supplementary irrigation.

Non-Calcic Brown soils

Non-Calcic Brown soils occur in uplands with undulating terrain in districts of Polonnaruwa, Batticaloa and Ampara and considerable parts of the Gal Oya valley and Maho area. They are best expressed in areas such as Welikanda, Galwewa, Wariyapola and Mahawa.

The characteristic dark brown to dark grayish-brown color and sandy texture collectively makes them easily recognizable. They can easily be observed by the general public in the uplands of the Aralaganwila research farm in the Polonnaruwa district and the Wariyapola training farm in the Kurunegala district. Sandy nature has restricted their agricultural potential.

These soils are suitable for growing a wide range of crops such as maize, finger millet, green gram, black gram, cowpea, ground nut, soybean, sesame, chilli, and big onion.

Calcic Red Latosol soils

Calcic Red Latosol soils are confined exclusively to the west of Jaffna peninsula. These soils have been intensively cultivated with a variety of both seasonal and perennial food crops by Jaffna farmers since ancient times primarily as cash crops for income.

The characteristic dark reddish-brown colour makes them easily recognizable by the general public especially in the uplands in Palali, Achchelu and Chunnakam areas in the Jaffna district.

They are suitable for growing field crops such as black gram, chilli and onion; vegetable crops such as brinjal, cabbage, capsicum, carrot and potato; and fruit crops such as banana, grapes, mango and pawpaw.

Red Latosol soils

Red Latosol soils extend from Puttalam through Mannar across to Mullaitivu on the east coast and occur on the high aspect of the relief. They have been best expressed in areas such as Wilpattu.

The characteristic dark reddish-brown color helps to easily recognise them. These soils have been exposed to the public in farming lands in Wathavillu area and excavation sites in Aruwakkalu area in the Puttalam district.

These soils support coconut and orchard crops such as citrus, mango and cashew particularly with the provision of supplementary water preferably through micro irrigation technologies. Yellow Latosol soils

Yellow Latosol soils extend from Puttalam to Mullaitivu in association with Red Latosol soils and occur on the middle to lower aspect of the relief. They have been best expressed in Tammana area in the Puttalam district.

The characteristic yellowish-brown to yellowish-red color helps to easily recognise them. They are exposed to the public in coconut plantations on middle slopes of uplands along the Puttalam to Karuwalagaswewa main road. These soils support crops such as coconut.

Regosol soils

Regosol soils occur as coastal strips in areas such as Kalpitiya peninsula, Mannar islands, east of Jaffna peninsula and districts namely Mullaitivu, Trincomalee and Batticaloa.

These soils have a characteristic yellowish-brown to very pale brown color which makes them easy to recognize. They are observable by the general public on farmlands in the Norochchola and Thalawila areas in the Kalpitiya peninsula.

These soils support growing permanent crops such as coconut and cashew and seasonal crops such as beet, bitter gourd, brinjal, cabbage, capsicum, chilli, radish, red onion, yard long bean, water melon under frequent irrigation.

Grumusol soils

Grumusol soils exist around the Tunnukai area in the west of the Mullaitivu district and Murunkan area in the north of the Mannar district. These soils exist in small extents and serve as a minor contributor for producing rice, the staple of the nation.

These soils are easily recognised by a characteristic black or very dark grey-brown colour. They are visible to the general public in paddy lands in the Tunnukai area in the west of Mullaitivu district. Due to their heavy clay texture, these soils support only rice farming.

Saline soils

Saline soils occur in lowlands in considerable extents in coastal districts namely Puttalam, Mannar, Kilinochchi, Jaffna, Mullaitivu, Trincomalee, Batticaloa, Ampara and Hambantota and minor extents in in-

land districts such as Kurunegala, Anuradhapura, Vavuniya, Polonnaruwa and Moneragala. They are most visible in areas such as Sevanagala, Puttalam and Nawagaththegama areas.

A dark brown colour with scattered white patches particularly at the end of dry periods makes them easily recognisable. They are very noticeable by the public as larger land parcels along either side of the A-09 road at Elephant Pass in the Kilinochchi district.

Due to a high salt content, these soils are unsuitable for growing a wide range of food crops. There is some limited potential for grazing livestock.

Bog soils

Bog soils are organic soils. They occur in waterlogged lowland areas in the Gampaha, Colombo, Kalutara, Galle and Matara districts. These organic soils support only a limited extent of rice farming. They are most commonly observed in areas such as Palatuwa in the Matara district.

Bog soils have a characteristic black color and a wet boggy-spongy-organic nature. They commonly occur along either side of streams connected to the lake at Bolgoda and near Polgasowita area in the Colombo district and Bandaragama area in the Kalutara district.

Farmers commonly attain low yields of rice on these soils.

Alluvial soils

Alluvial soils are found scattered throughout the island in the valleys and floodplains of streams and rivers. They serve as a minor contributor for production of the staple of the nation. They are best expressed in areas such as Manampiyiya, Galoya, Pugoda and Gampola.

These soils can be recognised by their yellowish-brown to brownish and grayish colours. The general public can observe them in flood plains of Mahaweli ganga at Somawathi Raja Maha Viharaya, Gal Oya near Oluvil and Deduru Oya in between Chilaw and Bangadeniya areas.

Alluvial soils support growing rice in both Maha and Yala seasons.

Low Humic Gley soils

Low Humic Gley soils are found scattered in the lowest slopes of landscapes throughout the country. These soils are confined mainly to the broader inland valley systems in this country. They are best expressed in areas such as Kahatagasdigiliya, Seruwila, Gampaha and Kiribathkumbura.

Low Humic Gley soils have a characteristic dark grayish-brown to dark brown colour and are easily observed by the general public in paddy lands on either side of the A-11 road in between Polonnaruwa and Kaduruwela cities.

These soils mainly support growing rice due to aquatic conditions created by water logging. Therefore, they are a major contributor to production of the staple of the nation.

Reddish Brown Latosolic soils

Reddish Brown Latosolic soils exist in uplands in the Kandy and Kegalle districts, the southwest part of Matale district, the southeast part of the Kurunegala district and considerable extents in the Nuwara Eliya district.

They are best expressed in areas such as Matale, Dodangaslanda, Rambukkana, Mawanella and Middeniya. These soils primarily support the growth of Kandyan forest gardens, minor export crops and many of the major plantation crops in the country.

These soils have a characteristic reddish-brown to brown color and are easily recognised in earth excavation sites in uplands in the Matale Municipal area.

Some fruit crops such as banana, avocado, jackfruit, mango, durian, rambuttan, papaya, mangosteen, mandareen, orange; minor export crops such as areca nut, betel vine, coffee, clove, cocoa, ginger, nutmeg, pepper and turmeric and vegetable crops such as beans, bitter gourds, ridge gourds and snake gourds perform better on these soils. The Kandyan forest garden system finds its best expression on these soils.

Immature Brown Loam soils

Immature Brown Loam soils occur in uplands in the Kandy and Kegalle districts and considerable extents in the Nuwara Eliya, Kurunegala and Matale districts.

They are best expressed in Akurana, Geli Oya, Pilimathalawa, Kaduganawa, Galagedara and Mawanella areas.

The characteristic dark brown to dark grey-brown colour helps to easily recognise them. They are exposed to the public along either side of the A-10 road near Galagedara Police Station in the Kandy district.

They support growing perennial fruit crops such as banana, avocado,

jackfruit, mango, durian, rambuttan, papaya, mangosteen, and mandarin and minor export crops such as areca nut, betel vine, coffee, clove, nutmeg, pepper, cardamom and turmeric. These soils also support Kandyan forest gardens and major plantations.

Red Yellow Podzolic soils

Red Yellow Podzolic soils occur on uplands in the districts of Gampaha, Colombo, Kalutara, Galle, Matara, Ratnapura, Nuwara Eliya, Badulla, Kandy and considerable parts of the adjacent districts. These soils support major plantations, minor export crops, up country exotic vegetable cultivations, wet zone home gardens and Kandyan forest gardens.

They are best expressed in areas such as Minuwangoda, Agalawatte, Homagama, Awissawella, Galigamuwa, Ratnapura, Nawalapitiya, Maskeliya, Horton and Nuwara Eliya.

The characteristic strong brown to yellowish-brown colour helps to easily recognize them. They are best observed in earth excavation sites in uplands in the Nuwara Eliya Municipal area.

These soils support a wide range of crops inclusive of plantations nature food and beverage crops such as tea and coconut; fruit crops such as anona, avocado, banana, carambola, durian, jackfruit, mandareen, mango, mangosteen, orange, papaya, passion fruit, pear, pineapple, rambuttan and strawberry; minor export crops such as areca nut, betel vine, coffee, cardamom, cinnamon, clove, cocoa, ginger, pepper, and turmeric; vegetable crops such as beans, bitter gourd, brinjal, Brussels sprout, cabbage, capsicum, carrot, cassava, cauliflower, chinese potato, dioscoreas, leek, lettuce, long bean, potato, reddish, sweet potato, tomato, winged bean, yams; and leafy vegetables.

Good soils help build flourishing civilisations. On the other hand, soil destruction and mismanagement lead to their downfall. Hence, proper management of all our agricultural soils in this country in a sustainable manner will help feed the nation. In this regard, every farmer should consult a village agriculture extension agent to identify crops most suited for his farmland. Under the stewardship of our farmers, we can help them to achieve the above goals of building a flourishing civilisation with an ensured national food security through a dominant agrarian economy.

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