Physical Conditions That Impact a Plant's Growth – Soil Types

Soil is the surface of the earth, which is commonly comprised of organic matter, clay and rock particles. Plants rely on soil in several ways.

Firstly, a plant spreads its roots into the soil to set itself firmly into the ground. The plant uses its roots to extract essential nutrients and water held within the soil. In order for a plant to reach its full potential, the characteristics of the soil in which its roots are anchored must be suitable for that plant's needs. If the soil is not suitable, the plant will not be able to extract energy from the earth. Unsuitable soil provides an unsatisfactory environment for that plant's growth.

It is essential for farmers and gardeners to have a sound understanding of soil types, as well as the plants that are suitable for growing in each soil type. There are six universally recognised main soil types. Each soil type is classified by the composition and size of the rocky matter it contains. These characteristics affect the quantity of water and air each can hold. The nutrients each soil contains are purely dependent on the quantity of organic matter found in the earth.

Type	*Characteristics*
Clay	• Formed from extremely weathered rock • Sticky when wet • Rock hard when dry • Minimal air spaces resulting in poor drainage • Fine particles
Sandy Soil	• Formed from weathered rocks such as limestone, granite, shale and quartz • Gritty to touch (more than 85% sand) • Fast draining and dry • Often nutrient deficient • Coarse/large particles
Silty Soil	• Formed from minerals such as quartz • Slippery and smooth to touch • Rich in nutrients • Weak and easily compacted • Small particles
Peaty Soil	• Formed from mostly organic matter • Dark in colour • Highly water retentive and may need drainage • Acidic in nature
Chalky Soil	• Sits on a bedrock of limestone or chalk • Larger grained and stonier than other soils • Free draining • Light brown in colour
Loamy Soil	• Formed from a mixture of clay, sand and silt • Feels slightly damp with a fine texture • Full of nutrients • Ideal for gardening