

Permeability

Permeability is the quality which permits movement of water and air through the most restrictive layer in the rooting zone. Plants need a balanced supply of both water and air to grow well. Soils may be placed into relative permeability classes through studies of texture, structure, and density.

VERY SLOW:

Permeability in the most restrictive layer of the rooting zone is less than 0.06 inches per hour. These soils have very firm, dense, clayey, or claypan subsoils with massive, sharp angular blocky, platy, or columnar structure. Root growth and movement is generally restricted to going between the blocks or “peds.”

SLOW:

Permeability in the most restrictive layer of the rooting zone is 0.06 to 0.60 inches per hour. These soils have firm, loamy, or clayey subsoils and clayey restrictive layers with medium blocky, subangular blocky, or prismatic structures. The most restrictive layer in these soils is commonly the lower subsoil.

MODERATE:

Permeability in the most restrictive layer of the rooting zone is 0.6 to 2.0 inches per hour. These soils have friable to slightly firm, usually loamy subsoils with blocky, subangular blocky, or prismatic structure.

RAPID:

Permeability in the most restrictive layer of the root zone is more than 2 inches. These soils have loose or often sandy subsoils with little if any defined structure. They are single grain. They have very little restriction to movement of water and air.

FIELD GUIDE FOR DETERMINING RELATIVE PERMEABILITY BASED ON A COMBINATION OF SOIL TEXTURE AND STRUCTURE

TEXTURE	SOIL STRUCTURE		
	Massive or Platy	Blocky or Prismatic	Single Grain or Weak Prismatic
c, sic, sc	very slow	slow	---
sicl, cl, scl, sil, l	slow	moderately slow to moderate	---
vfsl, fsl, sl	---	moderately slow to moderate	moderately rapid, rapid, very rapid
ls, lcos, s	---	---	moderately rapid, rapid, very rapid