

Infiltration Test and Organic Matter

Shapiro and Brubaker

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Evaluating Infiltration and Soil Organic Matter

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unlock the
SECRETS
IN THE
SOIL



2013CMD-ShapiroBrubaker (1)

Soil Permeability Classes

Permeability Class	Criteria Estimated rate (in/hr)
Very Slow	< 0.06
Slow	0.06 – 0.2
Moderately Slow	0.2 – 0.6
Moderate	0.6 – 2.0
Moderately Rapid	2.0 – 6.0
Rapid	6.0 – 20
Very Rapid	> 20

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Measuring Infiltration Rate

- Drive 3-in diameter ring to a depth of 3-in
- Line ring with plastic wrap
- Pour 107 ml water into the ring
- Gently pull the plastic away
- Record the time it takes for the water to disappear



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Bulk Density affect on root growth

Soil Texture	Ideal bulk densities for plant growth (grams/cm ³)	Bulk densities that affect root growth (grams/cm ³)	Bulk densities that restrict root growth (grams/cm ³)
Sands, loamy sands	< 1.60	1.69	> 1.80
Silts, silt loams	< 1.40	1.60	> 1.75
Silt loams, silty clay loams	< 1.40	1.55	> 1.65
Sandy clays, silty clays, clay loams	< 1.10	1.49	> 1.58
Clays (> 45% clay)	< 1.10	1.39	> 1.47

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Measuring Bulk Density



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Texture affect on Infiltration Rate

Soil Type	Steady infiltration rate (inches per hour)
Sands	> 0.8
Sandy and silty soils	0.4 - 0.8
Loams	0.2 - 0.4
Clayey soils	0.04 - 0.2
Sodic clayey soils	< 0.04

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