Conversions for determining turfgrass irrigation needs

1 acre-inch	=	27,154 gal	=	43,560 in^3	=	3,630 ft^3	
1 inch 1,000 ft^{-1}	=	620 gal	=	83 ft^3			
1 gallon	=	0.134 ft^3	=	8.34 lb			
1 million gallon	=	3.07 acre-feet					
7½ gallons	=	1 ft^3	=	231 in^3			
1 acre-foot	=	325,851 gal	=	43,560 ft^3			
1 pound of water	=	0.1199 gal					
Precipitation rate (in/hr)	=	$\dfrac{\text{gpm} \times 96.3}{\text{area (ft}^2)}$					

Slopes

10%	=	6E	=	10:1	33%	=	18E	=	3:1
18%	=	10E	=	6:1	50%	=	26E	=	2:1
25%	=	14E	=	4:1	100%	=	45E	=	1:1

Approximate Weight of Dry Soil

Type	Bulk Density	Weight		
	g cm^{-3}	lb ft^{-3}	kg m^{-2}	lbs acre^{-1} (6-in deep)
sand	1.6	100 (or 2700 lb yd^{-3})	1,623	2,143,000
loam	1.3 to 1.55	80-95	1,299-1,542	1,714,000
clay or silt	1.0 to 1.30	65-80	1,055-1,299	1,286,000
muck	0.65	40	649	860,000
peat (compact)	0.325	20	325	430,000

Sand weights (tons): = yd^3 x 1.3
Gravel weights (tons): = ft^3 x 110

  -0.5- to 1-in diameter gravel = 2,700 lb/yd^3
  -0.25- to 0.375-in diameter gravel = 3,000 lb/yd^3

Approximate Organic Materials for 6-inch depth per 1,000 ft^2 (weight variance in materials may occur).

Organic Material Volume in Mix	Approximate thickness applied to soil surfaces		Organic Material Needed	
%	in	cm	yd^3 1,000 ft^{-2}	m^3 100 m^{-2}
5	0.33	0.84	1.0	0.83
10	0.67	1.70	2.0	1.70
15	1.00	2.54	3.0	2.48
20	1.33	3.38	4.0	3.30
25	1.67	4.24	5.0	4.16
30	2.00	5.08	6.0	4.95

Example: If 10% organic materials is incorporated into the top 6-inches of a 1,000 ft^2 area, the organic material is applied to a depth of 0.67-in and 2.0 yd^3 will be needed (1.7 cm and 1.7 m^3 100 m^2).