

# Appendix B) Measurement & Conversion Factors

UNITS OF MEASURE	
<i>As Used in this Guide</i>	<i>Metric Equivalent</i>
acre	hectare (ha)
cubic foot	cubic meter (m <sup>3</sup> )
gallon/Mgallon	liter (L), cubic meter (m <sup>3</sup> )
hundredweight	kilogram (kg)
linear foot	meter (m)
mile	kilometer (km)
pound	kilogram (kg) for mass
square foot	square meter (m <sup>2</sup> )
ton	tonne (t)

BUSHEL WEIGHTS	
1 bushel (bu) equals	8 gallons (gal)
<b>1 bushel of:</b>	<b>weighs</b>
wheat	60 pounds (lbs)
corn	56 pounds
grain sorghum	56 pounds
sunflowers	27 pounds
cottonseed	32 pounds
canola	50 pounds
edible beans	60 pounds
rye	56 pounds
barley	48 pounds
millet	50 pounds

MASS (WEIGHT) CONVERSION FACTORS		
<i>To convert from</i>	<i>to</i>	<i>multiply by</i>
pound (lb)	kilogram (kg)	0.4535924
ton (2000 lb)	kilogram (kg)	907.1848

MEASUREMENT VALUES	
1 acre	2.47 hectares (ha)
<b>Surveyor's Measures</b>	
1 acre	43,560 square feet
640 acres	1 square mile
1 section	640 acres
7.92 inches	1 link
25 links	1 rod
4 rods	1 chain
10 square chains (160 square rods)	1 acre
80 chains	1 mile
1 Gunther's chain	66 feet
<b>Water</b>	
1 gallon (gal)	8.34 pounds (lbs)
1 million gallons (Mgal)	3.07 acre feet (acre-ft)
1 cubic foot (ft <sup>3</sup> )	62.4 pounds (lbs)
1 cubic foot (ft <sup>3</sup> )	7.48 gallons (gal)
1 acre-foot (acre-ft)	325,851 gallons (gal)
1 acre-foot (acre-ft)	43,560 cubic feet (ft <sup>3</sup> )
1 inch of rain	17.4 million gallons per square mile (Mgal/mi <sup>2</sup> )
1 inch of rain	27,200 gallons per acre (gal/ac)
1 inch of rain	100 tons per acre
One acre-foot equals the volume of water needed to cover an area the size of one acre with water one foot deep.	

**LENGTH CONVERSION FACTORS**

<i>To convert from</i>	<i>to</i>	<i>multiply by</i>
mile (mi)	kilometer (km)	1.60934
inch (in)	millimeter (mm)	25.4
inch (in)	centimeter (cm)	2.54
inch (in)	meter (m)	0.0254
foot (ft)	meter (m)	0.3048
yd (yd)	meter (m)	0.9144

**VOLUME CONVERSION FACTORS**

<i>To convert from</i>	<i>to</i>	<i>multiply by</i>
cubic inch (in <sup>3</sup> )	cubic meter (m <sup>3</sup> )	0.00001639
cubic foot (ft <sup>3</sup> )	cubic meter (m <sup>3</sup> )	0.02831685
cubic foot (ft <sup>3</sup> )	liter (L)	28.31684
cubic yard (yd <sup>3</sup> )	cubic meter (m <sup>3</sup> )	0.7645549
<b>U.S. liquid</b>		
gallon (gal)	cubic meter (m <sup>3</sup> )	0.00378541
gallon (gal)	liter	3.785
fluid ounce (fl oz)	milliliters (ml)	29.57353
fluid ounce (fl oz)	cubic meter (m <sup>3</sup> )	0.00002957
<b>Rate of Flow</b>		
cubic feet per minute (cfm)	liter per second (L/s)	0.4719
gallon per day (gal/d)	liter per day (L/d)	3.785
million gallons per day (Mgal/d)	thousand gallons per minute	0.6944
million gallons per day (Mgal/d)	thousand acre-feet per year	1.121

**AREA CONVERSION FACTORS**

<i>To convert from</i>	<i>to</i>	<i>multiply by</i>
square foot (ft <sup>2</sup> )	square meter (m <sup>2</sup> )	0.09290304
square inch (in <sup>2</sup> )	square meter (m <sup>2</sup> )	0.00064516
square inch (in <sup>2</sup> )	square millimeters (mm <sup>2</sup> )	645.16
square yard (yd <sup>2</sup> )	square meter (m <sup>2</sup> )	0.83612736
square mile (mi <sup>2</sup> )	square kilometer (km <sup>2</sup> )	2.590
acre (ac)	hectare (ha)	0.4047
acre (ac)	square foot (ft <sup>2</sup> )	43,560
acre (ac)	square meter (m <sup>2</sup> )	4,046.86
acre (ac)	square mile (mi <sup>2</sup> )	0.001562

**POWER CONVERSION FACTORS**

<i>To convert from</i>	<i>to</i>	<i>multiply by</i>
<b>Velocity</b>		
mile per hour (mph)	kilometer per hour (km/hr)	1.60934
mile per hour (mph)	meter per second (m/s)	0.44704
<b>Permeability</b>		
feet per day (ft/day)	centimeter per second (cm/sec)	0.000352

**TEMPERATURE CONVERSION FACTORS**

<i>To convert from</i>	<i>to</i>	<i>Formula</i>
degree Fahrenheit (F)	degree Celsius (C)	5/9 x (F° - 32)
degree Celsius (C)	degree Fahrenheit (F)	(9/5 x C°) + 32