# Appendix B) Measurement & Conversion Factors

## Units of Measure

<table>
<thead>
<tr>
<th>As Used in this Guide</th>
<th>Metric Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>acre</td>
<td>hectare (ha)</td>
</tr>
<tr>
<td>cubic foot</td>
<td>cubic meter (m(^3))</td>
</tr>
<tr>
<td>gallon/Mgallon</td>
<td>liter (L), cubic meter (m(^3))</td>
</tr>
<tr>
<td>hundredweight</td>
<td>kilogram (kg)</td>
</tr>
<tr>
<td>linear foot</td>
<td>meter (m)</td>
</tr>
<tr>
<td>mile</td>
<td>kilometer (km)</td>
</tr>
<tr>
<td>pound</td>
<td>kilogram (kg) for mass</td>
</tr>
<tr>
<td>square foot</td>
<td>square meter (m(^2))</td>
</tr>
<tr>
<td>ton</td>
<td>tonne (t)</td>
</tr>
</tbody>
</table>

## Measurement Values

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 acre</td>
<td>2.47 hectares (ha)</td>
</tr>
</tbody>
</table>

### Surveyor's Measures

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 acre</td>
<td>43,560 square feet</td>
</tr>
<tr>
<td>640 acres</td>
<td>1 square mile</td>
</tr>
<tr>
<td>1 section</td>
<td>640 acres</td>
</tr>
<tr>
<td>7.92 inches</td>
<td>1 link</td>
</tr>
<tr>
<td>25 links</td>
<td>1 rod</td>
</tr>
<tr>
<td>4 rods</td>
<td>1 chain</td>
</tr>
<tr>
<td>10 square chains</td>
<td>1 acre</td>
</tr>
<tr>
<td>(160 square rods)</td>
<td></td>
</tr>
<tr>
<td>80 chains</td>
<td>1 mile</td>
</tr>
</tbody>
</table>

### Water

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 gallon (gal)</td>
<td>8.34 pounds (lbs)</td>
</tr>
<tr>
<td>1 million gallons (Mgal)</td>
<td>3.07 acre feet (acre-ft)</td>
</tr>
<tr>
<td>1 cubic foot (ft(^3))</td>
<td>62.4 pounds (lbs)</td>
</tr>
<tr>
<td>1 cubic foot (ft(^3))</td>
<td>7.48 gallons (gal)</td>
</tr>
<tr>
<td>1 acre-foot (acre-ft)</td>
<td>325,851 gallons (gal)</td>
</tr>
<tr>
<td>1 acre-foot (acre-ft)</td>
<td>43,560 cubic feet (ft(^3))</td>
</tr>
<tr>
<td>1 inch of rain</td>
<td>17.4 million gallons per square mile (Mgal/mi(^2))</td>
</tr>
<tr>
<td>1 inch of rain</td>
<td>27,200 gallons per acre (gal/ac)</td>
</tr>
<tr>
<td>1 inch of rain</td>
<td>100 tons per acre</td>
</tr>
</tbody>
</table>

One acre-foot equals the volume of water needed to cover an area the size of one acre with water one foot deep.

## Bushel Weights

| 1 bushel (bu) equals | 8 gallons (gal) |

### Weights

<table>
<thead>
<tr>
<th>1 bushel of:</th>
<th>weighs</th>
</tr>
</thead>
<tbody>
<tr>
<td>wheat</td>
<td>60 pounds (lbs)</td>
</tr>
<tr>
<td>corn</td>
<td>56 pounds</td>
</tr>
<tr>
<td>grain sorghum</td>
<td>56 pounds</td>
</tr>
<tr>
<td>sunflowers</td>
<td>27 pounds</td>
</tr>
<tr>
<td>cottonseed</td>
<td>32 pounds</td>
</tr>
<tr>
<td>canola</td>
<td>50 pounds</td>
</tr>
<tr>
<td>edible beans</td>
<td>60 pounds</td>
</tr>
<tr>
<td>rye</td>
<td>56 pounds</td>
</tr>
<tr>
<td>barley</td>
<td>48 pounds</td>
</tr>
<tr>
<td>millet</td>
<td>50 pounds</td>
</tr>
</tbody>
</table>

## Mass (Weight) Conversion Factors

<table>
<thead>
<tr>
<th>To convert from</th>
<th>to</th>
<th>multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>pound (lb)</td>
<td>kilogram (kg)</td>
<td>0.4535924</td>
</tr>
<tr>
<td>ton (2000 lb)</td>
<td>kilogram (kg)</td>
<td>907.1848</td>
</tr>
</tbody>
</table>
**Measurements**

**Length Conversion Factors**

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

**Area Conversion Factors**

<table>
<thead>
<tr>
<th>To convert from</th>
<th>to</th>
<th>multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>square foot (ft²)</td>
<td>square meter (m²)</td>
<td>0.09290304</td>
</tr>
<tr>
<td>square inch (in²)</td>
<td>square meter (m²)</td>
<td>0.00064516</td>
</tr>
<tr>
<td>square inch (in²)</td>
<td>square millimeters (mm²)</td>
<td>645.16</td>
</tr>
<tr>
<td>square yard (yd²)</td>
<td>square meter (m²)</td>
<td>0.83612736</td>
</tr>
<tr>
<td>square mile (mi²)</td>
<td>square kilometer (km²)</td>
<td>2.590</td>
</tr>
<tr>
<td>acre (ac)</td>
<td>hectare (ha)</td>
<td>0.4047</td>
</tr>
<tr>
<td>acre (ac)</td>
<td>square foot (ft²)</td>
<td>43,560</td>
</tr>
<tr>
<td>acre (ac)</td>
<td>square meter (m²)</td>
<td>4,046.86</td>
</tr>
<tr>
<td>acre (ac)</td>
<td>square mile (mi²)</td>
<td>0.001562</td>
</tr>
</tbody>
</table>

**Volume Conversion Factors**

<table>
<thead>
<tr>
<th>To convert from</th>
<th>to</th>
<th>multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>cubic inch (in³)</td>
<td>cubic meter (m³)</td>
<td>0.00001639</td>
</tr>
<tr>
<td>cubic foot (ft³)</td>
<td>cubic meter (m³)</td>
<td>0.02831685</td>
</tr>
<tr>
<td>cubic foot (ft³)</td>
<td>liter (L)</td>
<td>28.31684</td>
</tr>
<tr>
<td>cubic yard (yd³)</td>
<td>cubic meter (m³)</td>
<td>0.7645549</td>
</tr>
</tbody>
</table>

**Temperature Conversion Factors**

<table>
<thead>
<tr>
<th>To convert from</th>
<th>to</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>degree Fahrenheit (F)</td>
<td>degree Celsius (C)</td>
<td>5/9 x (Fº - 32)</td>
</tr>
<tr>
<td>degree Celsius (C)</td>
<td>degree Fahrenheit (F)</td>
<td>(9/5 x Cº) + 32</td>
</tr>
</tbody>
</table>

**Power Conversion Factors**

<table>
<thead>
<tr>
<th>To convert from</th>
<th>to</th>
<th>multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>rate of flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mile per hour (mph)</td>
<td>kilometer per hour (km/hr)</td>
<td>1.60934</td>
</tr>
<tr>
<td>mile per hour (mph)</td>
<td>meter per second (m/s)</td>
<td>0.44704</td>
</tr>
</tbody>
</table>

**Rate of Flow**

<table>
<thead>
<tr>
<th>To convert from</th>
<th>to</th>
<th>multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>cubic feet per minute (cfm)</td>
<td>liter per second (L/s)</td>
<td>0.4719</td>
</tr>
<tr>
<td>gallon per day (gal/d)</td>
<td>liter per day (L/d)</td>
<td>3.785</td>
</tr>
<tr>
<td>million gallons per day (Mgal/d)</td>
<td>thousand gallons per minute</td>
<td>0.6944</td>
</tr>
<tr>
<td>million gallons per day (Mgal/d)</td>
<td>thousand acre-feet per year</td>
<td>1.121</td>
</tr>
</tbody>
</table>

**Permeability**

<table>
<thead>
<tr>
<th>To convert from</th>
<th>to</th>
<th>multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>feet per day (ft/day)</td>
<td>centimeter per second (cm/sec)</td>
<td>0.000352</td>
</tr>
</tbody>
</table>