

## Converting Liquid Formulations

$$\text{Volumetric Application Rate (pt/A)} = \frac{8 \text{ pt}}{\text{gal}} \times \frac{\text{Rate (lb ai/A)}}{\text{Concentration (lb ai/gal)}}$$

*Example:* To apply 1 lb/A active rate of a 4 lb/gal material

$$\frac{8 \text{ pt}}{\text{gal}} \times \frac{1 \text{ lb ai/A}}{4 \text{ lb ai/gal}} = 2 \text{ pt/A}$$

Similar conversion to liquid ounces/acre (oz/A) may be accomplished by:

$$\frac{\text{oz}}{\text{A}} = \frac{128 \text{ oz}}{\text{gal}} \times \frac{\text{Rate (lb ai/A)}}{\text{Concentration (lb ai/gal)}}$$

## Converting Dry Material Formulation

$$\text{Amount of product (lb/A)} = \frac{\text{Technical material rate (lb ai/A)}}{\text{Percent active ingredient (\% ai)}}$$

$$\text{Volumetric Application Rate (oz/A)} = \frac{\text{lb ai/A}}{\% \text{ Active}} \times \frac{16 \text{ oz}}{\text{lb}}$$

## Factors to Convert Broadcast Rate/Acre Banding Applications

$$\% \text{ area treated with band} = \frac{\text{Total band width sprayed per pass of implement}}{\text{Total row width covered per pass of implement}} \times 100\%$$

This allows computations for skip-row patterns:

*Example:* A field planted to 8-40-inch row pattern is 50% treated when a 20-inch band is applied to each row:

$$\frac{8 \times 20}{8 \times 40} \times 100\% = 50\%$$

## Conversion Factors

### Area Measure

1 square mile (mi <sup>2</sup> )	= 640 acres
1/4 mi x 1/4 mi	= 40 acres
1,320 ft x 1,320 ft	= 40 acres
1 acre	= 43,560 ft <sup>2</sup>
1 acre	= 208.7 ft x 208.7 ft
1 acre	= 13,068 ft of 40-in. rows
	13,756 ft of 38-in. rows
	14,520 ft of 36-in. rows
	16,335 ft of 32-in. rows
	17,424 ft of 30-in. rows
1 acre	= 0.405 hectare
1 hectare	= 2.47 acres
1 hectare	= 10,000 m <sup>2</sup>
1 yd <sup>2</sup>	= 9 ft <sup>2</sup> = 0.836 m <sup>2</sup>
1 ft <sup>2</sup>	= 144 in <sup>2</sup> = 0.09 m <sup>2</sup>
1 cm <sup>2</sup>	= 0.155 in <sup>2</sup>

### Linear Measure

1 in	= 2.54 cm
1 ft	= 12 in = 30.48 cm
1 yd	= 3 ft = 36 in = 91.44 cm
1 rod	= 16.5 ft
1 mi	= 5,280 ft = 1.6093 km

## Conversion Factors (continued)

### Volume and Liquid Measure

1 yd<sup>3</sup> = 27 ft<sup>3</sup> = 0.76 m<sup>3</sup>  
1 ft<sup>3</sup> = 1,728 in<sup>3</sup> = 0.028 m<sup>3</sup> = 7.48 gal  
1 bu = 1.25 ft<sup>3</sup>  
1 gal = 231 in<sup>3</sup> = 4 qt = 8 pt = 16 cups  
1 gal = 128 fl oz = 3.785 L = 3,785 ml = 3,785 cm<sup>3</sup>  
1 qt = 2 pt = 4 cups = 32 oz = 0.946 L = 946 ml  
1 pt = 2 cups = 16 oz = 0.473 L = 473 ml  
1 cup = 8 oz = 0.24 L = 240 ml  
1 fl oz = 2 tbsp = 6 tsp = 1.8 in<sup>3</sup> = 0.02957 L = 29.57 ml  
1 tbsp = 3 tsp = 0.5 oz = 14.78 ml  
1 tsp = 0.166 oz = 4.92 ml  
1 ml = 0.0338 fl oz

### Mass (Weights)

1 U.S. ton = 2,000 lb = 0.907 metric ton  
1 metric ton = 2,205 lb (avoir)  
1 lb = 16 oz = 453.6 g = 0.4536 kg  
1 oz = 28.35 g

### Velocity Measure

1 mph = 5,280 ft/hr = 88 ft/min = 1.467 ft/sec  
1 m/sec = 196.85 ft/min = 2.24 mph  
1 m/sec = 1.942 knots

### Pressure Measure

1 atm = 14.7 psi = 406.8 inches H<sub>2</sub>O @ 40 °F  
1 atm = 29.92 inches Hg @ 40 °F = 760 mm Hg @ 4 °C  
1 atm = 1.01325 bar  
1 psi = 27.68 inches H<sub>2</sub>O @ 40 °F = 144 lb/ft<sup>2</sup> = 703.06 kg/m<sup>2</sup> @ 4 °C  
1 psi = 6.8948 x 10<sup>3</sup> pascals = 6.895 Kpa = 2.036 inches Hg  
1 psi = 70.3 g per cm<sup>2</sup>  
1 pascal = 10 dynes/cm<sup>2</sup> = 1.45 x 10<sup>-4</sup> psi

### Temperature

°C = 5/9 (°F - 32)  
°F = (9/5 °C) + 32  
°K = °C + 273.16  
°R = °F + 459.69

\* For additional conversions see <http://www.abe.msstate.edu/tools.htm>

## Abbreviations

A = acres	in = inches	pt = pints
ai = active ingredient	in <sup>2</sup> = square inches	qt = quarts
atm = atmospheres	in <sup>3</sup> = cubic inches	tbsp = tablespoons
bu = bushels	kg = kilograms	tsp = teaspoons
cm = centimeters	km = kilometers	yd = yards
cm <sup>2</sup> = square centimeters	L = liters	°C = Degrees Celsius
fl oz = fluid ounces	mi = miles	°F = Degrees Fahrenheit
ft = feet	ml = milliliters	°R = Degrees Rankin
ft <sup>2</sup> = square feet	m = meters	°K = Degrees Kelvin
ft <sup>3</sup> = cubic feet	m <sup>2</sup> = square meters	
g = grams	mm = millimeters	
gal = gallons	mph = miles per hour	
H <sub>2</sub> O = water	oz = ounces	
Hg = mercury	psi = pounds per square inch	