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Conversion Factors

Rothamsted Research

Rothamsted Research (1986) *Conversion Factors* ; Yields Of The Field Experiments 1985, pp 351 - 352 - DOI: <https://doi.org/10.23637/ERADOC-1-19>

ROTHAMSTED REPORT FOR 1977, PART 1

CONVERSION FACTORS

Factors for the Conversion of Imperial to Metric Units

1 inch (in.)	= 2.540 centimetres (cm)
1 foot (ft) (=12 in.)	= 30.48 cm
1 yard (yd) (=3 ft)	= 0.9144 metre (m)
1 square yard (yd ²)	= 0.8361 m ²
1 acre (ac) (=4840 yd ²)	= 0.4047 hectare (ha)
1 ounce (oz)	= 28.35 grams (g)
1 pound (lb)	= 0.4536 kilogram (kg)
1 hundredweight (cwt) (=112 lb)	= 50.80 kg
1 ton (=2240 lb)	= 1016 kg = 1.016 metric tons (tonnes) (t)
1 pint	= 0.5682 litre (l)
1 gallon (gal) (=8 pints)	= 4.546 litres
1 fluid ounce = 1/20 pint	= 0.02841 litre = 28.41 ml
1 cubic foot	= 28.32 litres

<i>To convert</i>	<i>Multiply by</i>
oz ac ⁻¹ to g ha ⁻¹	70.06
lb ac ⁻¹ to kg ha ⁻¹	1.121
cwt ac ⁻¹ to kg ha ⁻¹	125.5
cwt ac ⁻¹ to t ha ⁻¹	0.1255
ton ac ⁻¹ to kg ha ⁻¹	2511
ton ac ⁻¹ to t ha ⁻¹	2.511
gal ac ⁻¹ to l ha ⁻¹	11.233

The following factors are accurate to about 2 parts in 100:

$$\begin{aligned}1 \text{ lb ac}^{-1} &= 1.1 \text{ kg ha}^{-1} \\1 \text{ gal ac}^{-1} &= 11 \text{ litres ha}^{-1} \\1 \text{ ton ac}^{-1} &= 2.5 \text{ t ha}^{-1}\end{aligned}$$

In general reading of the text there will be no great inaccuracy in regarding:

$$\begin{aligned}1 \text{ lb} &= 0.5 \text{ kg} \\1 \text{ lb ac}^{-1} &= 1 \text{ kg ha}^{-1}\end{aligned}$$

Temperatures

To convert °F into °C subtract 32 and multiply by $\frac{5}{9}$ (0.556)

To convert °C into °F multiply by $\frac{9}{5}$ (1.8) and add 32

CONVERSION FACTORS

Factors for the Conversion of Metric to Imperial Units

1 centimetre (cm)	= 0.3937 inch (in.) = 0.03281 ft
1 metre (m)	= 1.094 yards (yd)
1 square metre (m ²)	= 1.196 square yards (yd ²)
1 hectare (ha)	= 2.471 acres (ac)
1 gram (g)	= 0.03527 ounce (oz)
1 kilogram (kg)	= 2.205 pounds (lb)
1 kg	= 0.01968 hundredweight (cwt) = 0.0009842 ton
1 metric ton (tonne) (t)	= 0.9842 ton
1 litre	= 1.760 pints = 0.2200 gallon (gal)
1 litre = 1000 millilitres (ml)	= 35.20 fluid ounces = 0.03531 cubic foot (ft ³)

<i>To convert</i>	<i>Multiply by</i>
g ha ⁻¹ to oz ac ⁻¹	0.01427
kg ha ⁻¹ to lb ac ⁻¹	0.8921
kg ha ⁻¹ to cwt ac ⁻¹	0.007966
t ha ⁻¹ to cwt ac ⁻¹	7.966
kg ha ⁻¹ to tons ac ⁻¹	0.0003983
t ha ⁻¹ to tons ac ⁻¹	0.3983
l ha ⁻¹ to gal ac ⁻¹	0.08902

Plant nutrients

Plant nutrients are best stated in terms of amounts of the elements (P, K, Na, Ca, Mg, S); the old 'oxide' terminology (P₂O₅, K₂O, Na₂O, CaO, MgO, SO₃) is still used in work involving fertilisers and liming since Regulations require statements of P₂O₅, K₂O, etc.

For quick conversions

(accurate to within 2%) the following factors may be used:

$2\frac{1}{2} \times P = P_2O_5$	$\frac{3}{7} \times P_2O_5 = P$
$1\frac{1}{2} \times K = K_2O$	$\frac{5}{6} \times K_2O = K$
$1\frac{3}{8} \times Ca = CaO$	$\frac{7}{10} \times CaO = Ca$
$1\frac{3}{4} \times Mg = MgO$	$\frac{3}{5} \times MgO = Mg$

For accurate conversions:

<i>To convert</i>	<i>Multiply by</i>	<i>To convert</i>	<i>Multiply by</i>
P ₂ O ₅ to P	0.4364	P to P ₂ O ₅	2.2915
K ₂ O to K	0.8301	K to K ₂ O	1.2047
CaO to Ca	0.7146	Ca to CaO	1.3994
MgO to Mg	0.6031	Mg to MgO	1.6581