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Rothamsted Experimental Station Report for 1971 Part 2



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Conversion Factors

Rothamsted Research

Rothamsted Research (1972) *Conversion Factors* ; Rothamsted Experimental Station Report For 1971 Part 2, pp 204 - 205 - DOI: <https://doi.org/10.23637/ERADOC-1-6>

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 (sq yd) | = 0.8361 sq m |
| 1 acre (= 4840 sq yd) | = 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/acre to g/ha | 70.06 |
| lb/acre to kg/ha | 1.121 |
| cwt/acre to kg/ha | 125.5 |
| cwt/acre to tonnes/ha | 0.1255 |
| tons/acre to kg/ha | 2511 |
| tons/acre to tonnes/ha | 2.511 |
| gal/acre to litre/ha | 11.233 |

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

| | |
|--------------|---------------|
| 1 lb/acre = | 1.1 kg/ha |
| 1 gal/acre = | 11 litres/ha |
| 1 ton/acre = | 2.5 tonnes/ha |

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

| | |
|-------------|---------|
| 1 lb = | 0.5 kg |
| 1 lb/acre = | 1 kg/ha |

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 (sq m) | = 1.196 square yards (sq yd) |
| 1 hectare (ha) | = 2.471 acres |
| 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 |

| <i>To convert</i> | <i>Multiply by</i> |
|------------------------|--------------------|
| g/ha to oz/acre | 0.01427 |
| kg/ha to lb/acre | 0.8921 |
| kg/ha to cwt/acre | 0.007966 |
| tonnes/ha to cwt/acre | 7.966 |
| kg/ha to tons/acre | 0.0003983 |
| tonnes/ha to tons/acre | 0.3983 |
| litre/ha to gal/acre | 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:

| | | | |
|--------------------------|---------------------------------|-----------------------------|------|
| $2\frac{1}{3} \times P$ | = P ₂ O ₅ | $\frac{3}{7} \times P_2O_5$ | = P |
| $1\frac{1}{3} \times K$ | = K ₂ O | $\frac{5}{8} \times K_2O$ | = K |
| $1\frac{2}{5} \times Ca$ | = CaO | $\frac{7}{10} \times CaO$ | = Ca |
| $1\frac{2}{3} \times Mg$ | = 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 |