Understanding Fertilisers
How to calculate NPK nutrient input.

To plan accurate turf fertiliser input it is important to know how much actual nutrient is being applied in any given treatment and over the course of a season.

This can be calculated in the following ways;

1. Granular Fertilisers.

To calculate the Kg of nutrient applied per hectare, use;

Application rate (in grams /m^2) x % Nutrient content /10

Example: An application of Multigreen 30+5+14 (5–6 month release) applied at 40g/m^2

40 x 30 / 10 = 120 kg of N per hectare.

40 x 5 / 10 = 20 kg of P_2O_5 per hectare

40 x 14 / 10 = 56 kg of K_2O per hectare

Fertiliser analyses and inputs are expressed in elemental form for nitrogen (N), but in oxide form (P_2O_5 & K_2O) for phosphorus and potassium.

To calculate **actual** elemental input;

To convert P_2O_5 to elemental P – Multiply by 0.44

To convert K_2O to elemental K – Multiply by 0.83

This can be useful when considering other constituents of fertilisers.

For example, many granular fertilisers contain high levels of sulphur (S) expressed in the oxide form (SO_3).

To convert SO_3 to elemental S, multiply by 0.4.

Water Soluble fertilisers are treated as granular fertilisers. However, where application rates are in kg / ha, use the following formula.

2. Water Soluble Fertilisers

Application rate (in kg / ha) x % nutrient content / 100

Example: An application of Multi K 13+0+46 Water Soluble fertiliser applied at 50 kg / ha.

50 x 13 / 100 = 6.5 kg N per hectare

50 x 46 / 100 = 23 kg K_2O per hectare

Liquid fertilisers present a different challenge It is essential to know the Specific Gravity (S.G) of the product to work out nutrient content. To calculate the kg of nutrient being applied per hectare, use;

3. Liquid Fertilisers

Application rate (in litres per hectare) x Specific Gravity of the liquid = W

and then

W x % nutrient content / 100

Example: An application of 15+0+12 liquid applied at 100 litres per hectare. (S.G. = 1.36)

100 x 1.36 (Specific Gravity) = 136

136 x 15 / 100 = 20.4 kg N per hectare

136 x 12 / 100 = 16.3 kg K_2O per hectare

Convert U.S./Imperial to Metric

1 U.S gallon = 3.7854 litres	1 Imp fl.oz = 28.41 ml
1 U.S fl.oz = 29.574ml	1 acre = 4047m^2
1000 ft2 = 92.9m^2	2.471 acres = 1 hectare
1lb / 1000 ft2 = 48.83 kg / ha	1 oz = 28.35gms
1 Imp.gal = 4.546 litres	1lb = 0.4536kg = 453.6g

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