STEADLEAF PRESS / GROW

Learn What Fertilizer Labels Actually Tell You

Read the analysis, then read the directions.



Photograph: Monstera foliage photographed by Hope Duckworth. A real houseplant context, not a fertilizer trial, a deficiency diagnosis or a product endorsement.

A fertilizer package answers several different questions. The three prominent numbers describe nutrient analysis. The directions explain how that particular product is intended to be used. Read both before deciding whether it belongs in your plant-care routine.

This guide helps you decode a conventional N-P-K label and copy a dilution instruction accurately. It does not select a fertilizer or diagnose a nutrient deficiency. Bring the original, readable package to the worksheet; a front-label photograph alone may leave out the information you need.

Decode the three numbers

On conventional Canadian and US labels, N-P-K is shorthand for nitrogen, phosphorus and potassium. The reporting basis matters: the second and third guarantees are commonly expressed as P2O5 and K2O, not as elemental phosphorus and potassium. Canadian labels may call these available phosphoric acid and soluble potash. [1, 2]

Position	Read the guarantee as	Do not mistake it for
First number	Total nitrogen, expressed as N	A mixing ratio with water
Second number	Phosphate or available phosphoric acid, expressed as P2O5	The same percentage of elemental P
Third number	Soluble potash, expressed as K2O	The same percentage of elemental K

Invented analysis example: For a dry product with a 6-3-6 weight-percent analysis, 100 g of product corresponds to guarantees of 6 g N, 3 g P2O5 equivalent and 6 g K2O equivalent. This is label arithmetic, not an application amount or a real product label. The oxide expressions are reporting conventions; they do not tell you which chemical compounds are inside. [2]

A 12-6-12 analysis has the same 2:1:2 numerical ratio as 6-3-6, but twice each stated percentage. The products are not automatically interchangeable by scoop or by millilitre. Their formulations, densities and directions may differ.

The three numbers also do not describe every possible nutrient or establish that a plant needs feeding today. Read the rest of the guaranteed analysis and the product directions.

Find the directions that match your use

Begin with the product name and formulation. Identify whether it is ready to use, a concentrate to dilute, a soluble powder, or a product applied directly to growing media. Liquid and controlled-release products can have quite different application instructions. [3]

Label detail	What to copy
Intended plants and setting	The named plant group and indoor, outdoor or other use
Product form	Ready to use, dilute first, dissolve first, or apply directly
Application route	Soil or growing media, foliage, or another stated method
Rate	Product amount, its unit, and the water volume or other basis
Timing and frequency	The complete instruction and any seasonal or growth condition
Precautions	Required handling, storage, protective equipment and disposal wording

Do not convert a soil application into a foliar spray, or turn a granule into a liquid feed, because another product is used that way. Ask the manufacturer if the label does not cover your intended use.

Canadian consumer labels commonly pair analysis with directions and precautions. This sheet is a reading aid, not a legal compliance assessment; special product categories and other countries can use different wording. [1]

Keep the whole instruction: “Amount per litre” tells you concentration. It does not, by itself, tell you how much finished solution to give one pot or how often to apply it.

Work through dilution on paper

Use this calculation only when the actual label specifies a product amount per stated volume of water and permits the batch size you plan to make. Keep the same units throughout. Copy any mixing order and other directions separately.

Product amount needed = label product amount x planned water volume / label water volume

Invented practice instruction: Suppose a fictional label said “4 mL product per 2 L water.” This made-up instruction is for arithmetic practice only; do not use it to feed a plant.

Planned water volume	Calculation	Product amount in this invented exercise
1 L	4 mL x 1 L / 2 L	2 mL
3 L	4 mL x 3 L / 2 L	6 mL

The concentration stays 2 mL per litre in both rows. Making a larger batch does not make it stronger.

For a real product, use its actual instruction, not these numbers. A direction expressed per final solution volume is different from one expressed per water volume; preserve the label's wording. If the basis is unclear, pause and ask the manufacturer.

Keep grams and millilitres distinct. A scoop measures volume unless its label specifies an associated mass for that product. Do not assume 1 g equals 1 mL, substitute a different brand's scoop, or estimate a tiny amount that your measuring tool cannot resolve.

Your label reading sheet

Product name and date checked: _____

Plant and intended use: _____

Keep the package beside this sheet. Write “not stated” or “unclear” rather than filling gaps from memory.

Field	Copy from your actual label
N-P-K grade and exact guarantee names	
Product form and application route	
Intended plant group and setting	
Product amount and unit	
Water volume or other rate basis and unit	
Mixing order and preparation instructions	
Amount to apply per plant, pot or area if stated	
Timing, frequency and conditions	
Precautions, storage and disposal	

Question to resolve before use: _____

_____

Check the calculation before mixing

Fill this in only for a label that instructs dilution in water. For a ready-to-use or directly applied product, write “not applicable” and follow that product's instructions instead.

Calculation field	Your record
Label product amount, including unit	
Label water volume, including unit	
Planned water volume in the same unit	
Calculation with units written out	
Result and measuring tool	
Label checked again by / date	

Before mixing, confirm that you have the correct product, the correct use, compatible units and a way to measure the result accurately. If one of these is uncertain, leave the product closed while you get clarification.

A stronger mix is not a shortcut to healthier growth. Illinois Extension cautions that excess fertilizer can damage roots, particularly when growth is slowed in dim light, and advises following the label rather than strengthening the mixture. [4]

Keep handling precautions with your working notes. Follow the actual product's storage and disposal instructions, and keep it in its labelled container away from children and animals. This worksheet does not replace the package's safety information. [1]

My decision: Ready to follow the label / wait / ask a question

Reason or next step: _____

Sources and photograph

Primary sources checked 2 November 2026. Worksheets, comparisons and numerical exercises are original editorial teaching tools. No physical application, plant trial or commercial product recommendation is claimed.

1. Canadian Food Inspection Agency. T-4-130, Labelling requirements for fertilizers and supplements. Canadian analysis names, directions and product-specific precautions; no compliance opinion offered. https://inspection.canada.ca/en/plant-health/fertilizers/trade-memoranda/t-4-130

2. Purdue Extension. Fertilizing Woody Plants, HO-140. Only the conventional weight-percent analysis and P2O5/K2O reporting explanation are used here; landscape application rates are not transferred to houseplants. https://ag.purdue.edu/department/hla/extension/extension-publications-library/ext-pubs/ho-140-w.html

3. Illinois Extension. Container Gardens, Fertilizing. Different product forms and label-based application; no universal feeding interval, ratio or flushing procedure adopted. https://extension.illinois.edu/container-gardens/fertilizing

4. Illinois Extension. Houseplants, Care. Label directions and excess-fertilizer cautions; regional calendar and general ratio suggestions are not treated as universal. https://extension.illinois.edu/houseplants/care

Photograph credit: Hope Duckworth, “Leaves Close-Up (Cabarrus County,NC),” Monstera deliciosa, image 23709 in the NC State Extension Gardener Plant Toolbox. CC BY 4.0. Full frame proportionally resized and JPEG-encoded for the PDF; no crop, retouching or generated alteration. No endorsement implied.

Source: https://plants.ces.ncsu.edu/plants/monstera-deliciosa/

License: https://creativecommons.org/licenses/by/4.0/