# GARDEN FEEDING FERTILIZER TIPS: GUIDE

GROZINE
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**Better Understanding Garden Fertilizers for Healthier & Happier Plants**

## *How to Apply Plant Nutrients Like a Pro*

This garden feeding fertilizer tips guide will have you feeding your crops to their full potential and will teach you about how to choose what's going to work best for you and your garden, when to apply and how to do it best, with professional tips and tricks in feeding your favorite plants.

Grozine's garden feeding fertilizer tips guide will have you covered whether you grow outdoors organically, indoors under grow lights or even in a fully automated hydroponics greenhouse.

For practical purposes, there are ***THREE basic types of fertilizers that you can work with.***

Note that more advanced growers may combine all three types, so by no means should you feel that you need to stick with one source of crop nutrients in most situations.

Also in the garden feeding fertilizer tips guide you'll find information about the ***ABC's of NPK, when to choose liquids or powders, chelation explained and how and when to apply for best results using professional tips and tricks.***

After, remember to visit our site for further reading about ***the importance of pH, Crop Feeding Programs, Filtering Garden Water and Beneficial Microbial Life in the Garden.*** >>>


Certified Organic Fertilizer

# *Organic*

Organic plant fertilizers and crop nutrients are becoming increasingly popular, as home gardeners and commercial growers gain more awareness about the foods they eat and how they are cultivated.

***Is organic best?***

When organic growing works, it usually works very well. Well grown organic crops may produce respectable yields of greens, flowers and fruits and harvests are often noted for great tastes and hardiness to resist plant diseases naturally.

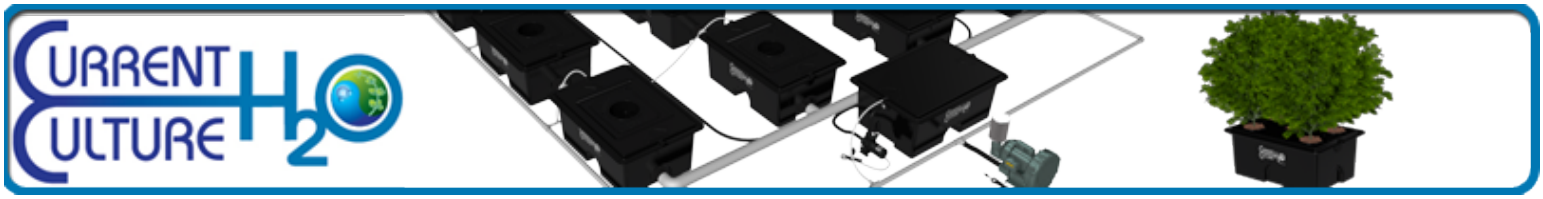
However, just because something is "organic" doesn't mean that it's the best choice. It's all about the right tool for the right job, as there are some factors that play a strong role in determining if an organic fertilizer source is really going to help. Organic nutrients can be slower to release fertility. While they can be forgiving in the short term, long term applications can be trickier to manage. For contrast, changes can be seen in hours with fertilizer in hydroponics systems while in organics it can take days or weeks.

**Organic Fertilizer DO's**

- outdoor soil gardens; anything goes here, ie cover crops, compost amendments, compost teas, feedings
- for soilless media like coco coir or peat mix use soluble sources, ie dissolves in water
- use some slow to intermediate release materials like kelp meal and worm castings in media
- achieve targeted weekly fertility with aerobic compost tea brews, or bottled
- ensure that there is healthy soil life, ie microbes to cycle fertility
- use filtered water or rain water

**Organic Fertilizer DON'Ts**

- compost indoors or in soilless media can create all kinds of foul problems
- animal based products like blood meal should be avoided indoors or on food crops
- very few organic nutrients are suitable for recirculating reservoirs (ie hydroponics) or for use with automated drip irrigation systems.
- after mixed with water, should not be allowed to stand for more than a few hours before applying in most instances (it's like freshly squeezed orange juice left on the counter)
- chlorinated water will make organic garden fertilizers far less effective because it kills off the necessary microbiology around plant roots when using organic sources.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Conventional Fertilizers:
Use Sparingly, Proceed with Caution

## *Conventional Fertilizers*

***A Miracle? Hardly.***

These are the most common fertilizer sources used by gardeners, although there is a shift occurring in this trend as home gardeners and commercial growers gain awareness of the improvements in modern crop fertilizers that are increasing in availability and cost effectiveness in growing safe and healthy food crops.

Conventional fertilizers found at the building center are usually a blend of synthetic agricultural grade fertilizer materials, and contain ingredients like Ammonium Nitrate and Urea. These two fertilizer materials are often avoided by savvy indoor gardeners or hydroponics growers (and experienced nursery growers) alike.

Conventional fertilizers are incredibly inexpensive, and there are lots of brands to choose from. Often the ingredients are the same, while there are many different ratios of these ingredients to provide different formulations for Seasons or different crop stages, for example leaf growth versus fruiting and flowering. 20-20-20 & 10-30-20 are common NPK* values in these types of products

***What's N-P-K?***

By law, fertilizer labels have to state the potential Nitrogen (N), Phosphorous (P2O5) and Potassium (K2O) levels the product contains. There is much more to fertilizers than this, and by no means tells you that one fertilizer is better than another. In basic terms, you'll want more N+K for leaf growth and more P+K for flowering and fruiting. Additionally, P helps promote root growth and K helps promote ripening.

*Other elements are just as important, although used in smaller quantities.* These are: Calcium, Magnesium, Iron, Zinc, Copper, Molybdenum, Boron, Silicate and Cobalt

Conventional fertilizers are typically not applied to crops of any real value. You might see a quick flash of growth or blooms after an application, but in the long run plant health may suffer and the soil or root environment toxifies with impurities—often, we get what we pay for. Also note that most conventional fertilizers are "incomplete" and assume some level of soil fertility. For example they may not contain necessary calcium, magnesium or Trace Elements (ie Iron)

***Conventional Fertilizer DO's***

- OK for bedding plants and short term annuals, although soil health suffers over time
- apply lime in most soil types with conventional fertilizers as they tend to acidify the soil over time
- add boosters like B-Vitamins, Humates or Cal-Mag supplements to provide a more complete crop diet
- monitor the soil or growing media for acidification by checking the pH and avoid creating saline conditions by using conventional fertilizers sparingly

***Conventional Fertilizer DON'Ts***

- not recommended for recirculating hydroponic systems
- typically not well suited for indoor growing under lights
- avoid applying to plants with sensitivity to saline conditions
- should not be applied for several weeks prior to harvesting food crops; flush the soil well and rinse fruits and vegetables well before eating
- most "polymers" ie water retention crystals in formulas should be avoided for food crops


# *Hydroponic Fertilizers*

Hydroponic nutrients are highly soluble fertilizers and are made with the cleanest fertilizer materials (grade of purity, ie food grade or greenhouse grade) available when purchased from specialty sources like your local hydroponics shop or online hydro supply. All necessary elements are supplied in exacting ratios, often with many or all of the Trace Elements supplied in Chelated forms.

### *What's a Chelated Fertilizer?*

Chelated fertilizers are fertilizers elements that have been complexed to make them easier for your plants to absorb. Iron (Fe) is a great example, because both humans and plants need chelated forms in order for them to be absorbed; whether through the root membrane or in your intestine.

Metals like Iron may carry a strong electrical charge ie magnetism. Iron carries a strong positive charge (it's a Cation +, rather than Anion -) which makes it hard to absorb. When another molecular chain bonds to it, like EDTA, DTPA, Amino Acids or Fulvates for example, the charge is neutralized and the element can be absorbed readily.

***There are many types of complexing agents used,*** and quality varies. EDDHA is a superior synthetic chelate, while EDTA is effective at lower pH levels and DTPA at higher pH levels (ie alklaline). ***Amino Acids, Fulvic Acid and Citric Acid are example of naturally occurring complexors.*** Soil microbial life may also play a role in chelation. Well formulated Hydroponic nutrients stable in pH when re-circulated or applied directly to growing medias.

These fertilizers can be made with fewer harmful impurities than organic sources, ie lab or research grade materials. When re-circulated in a highly aerated hydroponic system, only a fraction of feeding strengths are required versus conventional fertilizers making them a strong contender for more sustainable agricultural growing methods.

Hydroponic fertilizers aren't just for growing in water culture systems. Whether you are growing in soil or soilless mixes like coco coir, the purity and highly available sources of fertilizers in hydro formulas make them a good choice for dialling in your crop feeding program so plants get exactly what they need when they need it—pure and uninterrupted nutrient absorption can produce very healthy crops.

### *Hydroponic Fertilizer DO's*

- ideal for all types of gardens and growing methods
- ensure that you have a complete formula, whether you prefer one part, two part of three part formulations
- use the highest quality water available to you for re-circulating hydroponics systems
- inspect and adjust pH levels as necessary

### *Hydroponic Fertilizer DON'Ts*

- never mix multiple formulations in concentrated form together, always dilute into water as per label
- avoid over applications, these nutrients are readily taken up by plants
- full strength as per labels is usually very strong, ¼ to ½ strength is usually just fine in many instances (use a EC Meter to be sure)
- if you're not an expert, try and keep it simple: look for multi-formulas in one or fewer products instead of having twelve different things to add every time you want to mix up a reservoir to feed your plants.


TAP/HARD

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DIRTY

Not your Mom's powdered fertilizer:
Complete Crop Feeding, One Step

## *What's Better Powdered or Liquid Fertilizers?*

### *Powdered Fertilizers*

**Advantages:**

-great bulk density, easy to ship and carry

-can contain a variety of valuable fertilizer materials, ie a whole feeding program in less packaging

-less measuring required, typically

-are not effected easily in storage or shipment by hot or cold temperatures

-often more economical to use

-in some cases may be mixed into growing media or broadcast and incorporated onto surface of soil for easy and lasting applications

### *Liquid Fertilizers*

**Advantages:**

-dissolve quickly and easily into reservoirs or watering cans

-consistent fertility when shaken well with each application

-may contain special ingredients that are available only in liquid forms

-higher rates of solubility mean less stuff to potentially clog up water lines or nozzles

## *Garden Feeding Fertilizer Tip Guide:*

### *How to Feed Crops Like a PRO*

- Use formulas intended for your crop type and growing method; custom formulations are available taking into account your water type, crop, season and other factors

- Monitor your pH levels in both your fertilizer water and in the grow medium or root zone; there can be a difference, ie. in rockwool, you need to keep the fertilizer water at pH 5.5 to achieve pH 6.3 in the highly alkaline Rockwool material

- Start with mild feedings, and increase feed strength as needed; don't try and force feed your plants

- In soil gardens apply at full strength once per week and then just plain water as necessary; in soilless gardens practice a Feed, Feed, Water fertigation cycle in keeping crops hydrated and fed

- When it's hot outside, in the greenhouse or the grow room plants need more water than fertilizer; decrease your fertilizer levels in hot weather, but water often

- Take advantage of microbial life by brewing aerobic compost teas and apply to roots in soil and soilless gardens or as a foliar spray in re-circulating hydroponics like RDWC (Recirculating Deep Water Culture)

- In container gardens or beds, when watering is needed, apply just as the sun is coming up or as lights come on to the point of run-off; a single watering with lots of run off helps keep salt-build up down (excess fertilizer accumulating in soil or media)

- Hydroponics systems can be automated for fertilizer dosing and nutrient solution monitors and controls; a single person or family can grow a tremendous amount of crop using automated hydroponics

- In soil and soilless medias, use only plain water the final week to ten days before harvesting food crops to improve tastes and aromas by flushing away excess fertilizers and nutrient residues; this also makes it easier to reuse the soil or growing media for future crops

- Follow a proven feeding program for your plant type, cropping cycle and growing method; as you gain experience you can start to add products to your program but start simple, ie fewer formulas