

Plant Food, you say?

Part Three: And what about labels?

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Once you decide on the kind of nutrient you want to give to your plants, you still have to choose which one will offer you what you are looking for, and which one will provide good return on your investment. That's when you stand in the store and look at the several brands displayed – and wonder which one to choose. That's when the product's label can help you.

A label on a bottle of nutrient serves 2 purposes. The first one is to inform and protect you; the second one is to make you want to buy the product. The first part is required by law, it includes the type of registration, an NPK (when it applies), a minimum guaranteed analysis etc... the second part is left to the manufacturer's marketing creativity.

WHAT DOES THE LAW SAY?

Registration:

First, a label must always show some type of registration. A nutrient can fall into one of 3 categories: Mineral, a mix of mineral and organic, organic (biologic)

Minerals:

100 % mineral nutrients don't have to be registered if they fall into one of the categories defined by the European Community. So, a mineral nutrient should mention on the label the following:

“EC nutrient”, followed by the category in which it falls.

For example: “Name of the product, EC Nutrient, NPK solution” or “Name of the product, EC Nutrient, Micronutrient with primary and secondary elements”

On those products there are no tests done by a government lab prior to putting the product on the market, but the product can be tested at any time by the bureau of repression of frauds. It is the responsibility of the manufacturer to comply with the requirements of the category in which he is claiming to belong.

Mixes of mineral and organic:

All nutrients that are not strictly mineral should undergo a registration process. On the label, they will generally give the norm under which they fall followed by a registration number. This category is subject to prior testing by an independent lab and a lengthy bureaucratic registration.

If a nutrient claims to have anything other than mineral salts in the bottle you must see a registration number on the bottle.

Organic:

Organic nutrients have two possible mentions: the first one is “Nutrient that can be used in organic farming in compliance with EC regulation N° so and so”, the second “Nutrient certified organic by...”. There are a few reputable organisms in charge of the certification. The rules for certifications are the same all over Europe. When a label says “can be used in organic farming”, no prior control is made. It is a claim from the manufacturer, as in the case of an EC nutrient. It can be subject to a control at any moment and has to comply with what it claims.

Eco labels:

The registration under an “Eco label” is a lot more difficult to obtain since it does not examine only the product itself, but all the manufacturing process including the sourcing of ingredients. Very few, if not none of the manufacturers have it today, to my knowledge.

CONSUMER'S INFORMATION

Apart from registration, the label must inform you on what is in the bottle. The following information should always be featured on the label:

NPK (when it applies), minimum guaranteed analysis, source of ingredients.

Also, in the case of microelements, the form in which they are present (chelates or sulphates), and an identification of the chelate, when there is one.

A list of ingredients with their chemical names and a minimum warranty for each element claimed,

Example of a declaration of mineral nutrients	
CE nutrient	
Includes micro nutrients with primary and secondary elements	
name of the product - NPK X - X - X	

Declaration of micro elements	
Minimum guaranteed to analysis	
Boron (B)	x %
Cobalt (Co)	x %
Copper (Cu)	0.01% chelated copper (EDTA) x %
Iron (Fe)	0.15% chelated iron (6% EDDHA - 10% DPTA) x %
Manganese (Mn)	0.03% chelated manganese (EDTA) x %
Molybden (Mo)	x %
Zinc (Zn)	0.01% chelated zinc (EDTA) x %

Declaration of secondary elements	
Minimum guaranteed to analysis	
Total Nitrate (N)	x %
xx % Amomiacal nitrogen	
xx % Nitrate nitrogen	
Available phosphate (P ₂ O ₅)	x %
Soluble potassium (K ₂ O)	x %
Total magnesium (Mg) (water soluble)	x %

Identification of a manufacturer,
Specific user dosage and utilisation (in your own national language),
A volume, in case of a liquid, or a mass in case of a solid.

Let's get into all this in more details

WHAT DOES THE LABEL TELL YOU?

NPK stands for Nitrogen, Phosphorus, and Potassium. It tells you the percentage of each one of these elements (in weight by weight) in your bottle.

The NPK will tell you if the fertilizer is more one for vegetation, with high nitrogen, or one for flowering and fruiting with high P and K. It also tells you the ratio between those 3 elements for instance a NPK of 20-20-20 has a ratio of 1-1-1. A NPK of 14-7-21 has a ratio of 2-1-3

To make something simple more confusing, nitrate is expressed as N; P, phosphorus, is expressed as P_2O_5 , and K, potassium, as K_2O ! It comes from a time when chemists could not make precise measures of single elements so they were measuring their oxides. Today, it is not any more necessary but it lingers into our legislation as a fragment of the past.

*To obtain P from P_2O_5 multiply by 0,436
To obtain K from K_2O multiply by 0,830*

Typically liquid nutrients and complete formulas will have a low NPK.

Secondary nutrients: When a manufacturer claims to have in the bottle secondary nutrients they should be listed with their full name and chemical symbols as well as a minimum per cent warranty. Also Nitrogen should be split between nitrate, ammonium and sometime urea.

Micro elements: if they come from a sulphate the label should say "derived from sulphate of...". For instance: "0,01% Zinc derived from zinc sulphate"

If they come from a chelate the nature of the chelate should be stated. Example "1,5% iron chelated from EDTA"

Then you should have on the label a "User's Recommendation" or an "Application Chart", stating what the nutrient does (complete nutrient, or "specialized nutrient" addressing specific deficiencies) and how much you should apply of it. You should also find some safety recommendation such as "keep out of reach of children". Storage conditions are not part of the mandatory mentions.

WHAT THE LABEL DOES NOT SAY?

What's above pretty much sums up what you should find on a label. It seems like a lot of information but...

First the NPK: It is a minimum guaranteed; it means that your bottle may contain more than that, (sometimes much more). A manufacturer may declare less of an element to make the formula appear more balanced or for any other reason. It is in fact normal practice to declare less than the actual content to have a margin of error and be above or at the declaration level in case of control.

Concerning secondary nutrients, you must have a minimum level in the bottle to be allowed to declare them. The minimums were set for field applications and are hard to reach for a hydroponic nutrient. So the element may very well be in the bottle but not on the label.

Also, according to the category in which you declare your nutrient, the label can be completely different since you have to list only the elements in reference to the category that you claim. For instance, in the case of a complete liquid nutrient with micro, you could declare it as

1 - "NPK nutrient with micros", in that case you only give a percentage for the NPK

2 - "Micro with secondary and major elements". In that case you give a value only for the micros.

3 - "Secondary nutrient with major and micros". In that case, you can declare only the secondary.

You see that a complete formula could be sold under 3 very different labels (the third one of this example is unlikely)

WHAT DO WE FIND ON THE LABELS IN REAL LIFE?

All we said until now is theoretical. It complies with the European regulations for the distribution of nutrients in the EC. In the indoor growing field, there are not as many controls than in the mainstream gardening industry. As a result many labels found on the shelves of grow-shops say very little - or even worse, are deceptive.

For instance NPK should be stated clearly at the top of the label. It should always be expressed in % and not in any other scale. This is often not respected. I see bottles on shelves with no NPK or 2, sometime 3 different values given on the label. Also I have seen NPK expressed 10 times, sometime 100 times more than what they

should be. Some go well above 100%!

In case of doubt, look at the user's recommended dilution. If one label claims a NPK 10 times higher than another, but the user's dosage stays the same, clearly, the one with the high NPK is wrong.

Often, manufacturers don't give a clue on which type of micro was used. In that case, assume that it is a sulphate. Chelates are much more expensive, much better for the plants. As a manufacturer, if I put a chelate in a bottle, I will want to communicate on it.

CONCLUSION:

A label should be something on which the customer can rely to be informed and make a choice. As we have seen it is not always the case, labels can be deceptive, or give you only partial information about the product.

There is one thing that the label does not tell you: is the nutrient in the bottle good or not? At the end of the day, the only way that you have to make your mind is to test by yourself. So how to choose when you are in a store? You can ask a friend grower what works best for him and start with this product. Or you prefer to decide for yourself but you have no prior idea when you enter the store, so read the labels and choose the brand that you feel informs you well.