

## The Florida Fertilizer Label <sup>1</sup>

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Fertilizers are manufactured from a wide variety of materials to supply required plant nutrients. Once these materials are mixed, it becomes difficult to distinguish the materials present. In the past, a few unscrupulous manufacturers have taken advantage of this to increase their profit. To protect consumers and legitimate manufacturers from such practices, the Florida legislature enacted the first fertilizer law in 1889 and has amended it many times since enactment. These laws regulate the manufacture and sale of fertilizers in the state.

The law requires that the manufacturer purchase and affix a label to each bag, package, container, or lot of fertilizer offered for sale in the state. The law requires that each label show specific information about the analysis and composition of the mixture or material.

### Information on the Fertilizer Label

The label includes the following:

1. Each label of fertilizer shall bear the Florida license number. The fertilizer license number, shall appear and be clearly identified on all fertilizer labels with a capital "F" preceding the

license number. The number must be clear, legible and appear prominently and conspicuously on the label in proximity to the brand name or guaranteed analysis.

2. A "brand name" is the name used by the licensee to identify his product. "Brand" means a term, design, or trademark used in connection with one or several grades of fertilizer. The label shall also include a grade in close proximity to the brand. The "grade" means the percentages in fertilizer total nitrogen expressed as N, available phosphate expressed as  $P_2O_5$ , and soluble potassium expressed as  $K_2O$ , stated in whole numbers in that order.
3. The "net weight" is the actual weight present in the package or container. If sold in bulk, five labels containing all the required information must accompany a delivery ticket that shows the certified net weight of the bulk material.
4. The "name and street address" of the manufacturer or registrant of the fertilizer must be included.

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**All chemicals should be used in accordance with directions on the manufacturer's label.**

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5. When the term "organic" is used in the label, labeling, or advertisement of any fertilizer, the water insoluble nitrogen must not be less than 60% of the total guaranteed nitrogen so designated.
6. The "guaranteed analysis" section of the label is divided into the percentage of total nitrogen, which is the sum of all forms of nitrogen present in the mixture, available phosphate, soluble potassium, and a statement of each secondary plant nutrient present in the mixture. The chlorine content is guaranteed as the maximum percentage present, when applicable, in agricultural fertilizer. Specialty Fertilizer, 49 pounds and less, designed for home and garden use, is exempt for the chlorine requirement.
7. A "Derived from" section is a listing of the actual source materials that constitute the primary and secondary plant nutrients guarantees.

#### **Total Nitrogen:**

Nitrogen may be included in the form of: (1) nitrate nitrogen, (2) ammoniacal nitrogen, (3) water soluble nitrogen, (4) urea nitrogen, (5) water insoluble nitrogen. A statement of the percentage of each form present in the fertilizer must be given. Nitrate nitrogen includes all of the nitrate ( $\text{NO}_3^-$ ) forms in the fertilizer mixture. Ammoniacal nitrogen includes all the ammonium forms of nitrogen in the fertilizer. When urea is present it may be guaranteed as water-soluble nitrogen or urea nitrogen.

Water-insoluble nitrogen originally meant such natural organic materials as dried blood and tankage. Recently, however, many forms of water-insoluble nitrogen have been developed so that now any water-insoluble source is included in this figure. Insoluble sources may be materials such as urea-formaldehyde, isobutylidene diurea, magnesium ammonium phosphate, or other similar materials. A product made by coating urea with sulfur is also sparingly soluble for a period of time in the soil, but the method of analysis used in the fertilizer laboratory currently prohibits the characterization of the material as a water-insoluble nitrogen source. The natural organic sources become available by microbial action that converts the nitrogen first to

ammonium and then to the nitrate form. Some water-insoluble nitrogen forms are rendered insoluble by coating with sulfur or plastic-based materials, by chemical combination with other elements, or by inhibiting the activity of microorganisms that release the nitrogen from insoluble forms. Many of these sources are treated in such a way as to provide for a long continued release of nitrogen. Listing of source materials in which availability of nitrogen is controlled through slow hydrolysis of water-soluble organic compounds shall constitute a claim of slow or controlled release of a nutrient, and a guarantee for such nutrient sources is required.

#### **Available Phosphoric Acid:**

This is the water-soluble plus the citrate-soluble phosphorus (soluble in weak acids). The soil solution is a weak acid, in which the citrate-soluble materials are readily made available for plant use. The guaranteed available phosphoric acid is the oxide equivalent of the actual phosphorus in the mixture. Elemental phosphorus makes up 44% of the amount of available phosphoric acid guaranteed in the mixture. The actual form of phosphorus is the mono-basic phosphate ion ( $\text{H}_2\text{PO}_4^-$ ), which is water soluble, or the dibasic phosphate ion ( $\text{HPO}_4^{2-}$ ), which is citrate soluble. The terms "available phosphorus" or "available phosphate" may be used instead of "available phosphoric acid".

#### **Soluble Potash:**

This is the oxide equivalent of the potassium present in the mixture. Elemental potassium makes up 83% of the guaranteed soluble potash in the mixture. The actual form of potassium in the fertilizer is the potassium ion,  $\text{K}^+$ . Soluble potash is that portion of the potash contained in fertilizer or fertilizer materials which is soluble in aqueous ammonium oxalate, aqueous ammonium citrate, or water, according to the an applicable AOAC International method. All of the potassium guaranteed on a fertilizer label is soluble K which implies that it goes into solution readily when applied to the soil and that it is immediately available for plant uptake. The term "soluble potassium" may be used instead of "soluble potash".

**Total Available Primary Plant Nutrient:**

This is the sum of the total nitrogen, available phosphoric acid, and soluble potash. These are defined by the fertilizer law as the primary plant nutrients. The three figures, such as 10-30-10, are known as the guaranteed analysis of the material. The sum of these, the total available primary plant nutrient, makes up the grade of the mixture. The term "low analysis" will apply to fertilizer which contains less than 16% total primary plant nutrients. The label of any low analysis fertilizer must express the grade (N-P-K) in close proximity to the product name, e.g., "African Violet Plant Food 2-1-1." Minimum guarantees are stated in Rule 5E-1.008 FAC Low Analysis Fertilizer <https://www.flrules.org/gateway/RuleNo.asp?ID=5E-1.008>.

"Specialty fertilizers" are fertilizers packaged, marketed, and distributed for home and garden use and packaged in containers or bags such that the net weight is 49 pounds or less. "Specialty fertilizers" require registration, label approval and a registration fee(s).

**Chlorine, Not More Than:**

Chlorine must be stated as "not more than" because this element may be toxic to many plants and/or reduce quality and yields. Tobacco is especially sensitive to chlorine as it reduces the burning quality of the leaf. In addition, some vegetable crops and greenhouse flowers show toxicity symptoms and reduced quality and yields from excessive chlorine. It is required that the statement "chlorine, not more than" be placed on the label so that the purchaser is aware of the content of this material in the mix. "Specialty fertilizer" defined in Section 576.011(36), F.S., is exempt from chlorine guarantees.

**Derived From:**

This is a statement of the actual source materials for the primary or secondary plant nutrients guaranteed.

**Secondary Plant Nutrients:**

The guaranteed analysis shall specify that secondary plant nutrients are present in elemental form. Magnesium, Iron, Zinc, Copper and Manganese must be expressed as "total" and/or "water-soluble"/"soluble" depending upon the source materials formulated in the product. Chelated elements are guaranteed separately when a chelating agent is denoted in the derivation statement below the guaranteed analysis. Sulfur must be guaranteed as sulfur (combined) and/or sulfur (free) in the elemental form, depending upon the source material in the formulation. "Specialty Fertilizer" defined in Section 576.011 (36), F.S., is exempt from sulfur guarantees.

A "derived from" statement is also required to give the sources of secondary elements contained in the mixture, such as magnesium sulfate and manganese sulfate. When a chelated form of a plant nutrient is claimed in addition to another form of the same element, the chelated portion shall be guaranteed separately.

Some fertilizer mixtures contain pesticides. These mixtures must have a yellow label with lettering in a contrasting color to be conspicuous. Only the pesticides allowed (by law) may be included in the mixtures and in amounts not to exceed the maximum allowed. The label must include the crops for which the pesticide(s) are recommended and directions for use. It must also include the required precautionary statements. It states the percent active ingredient by weight and states the actual number of pounds per ton in the mixture.

Labels are required for all materials used as fertilizers in Florida, when sold as separate materials. The guarantees are similar to those on the fertilizer label for mixed fertilizers.

All manipulated manures, composts, soil conditioners, soil amendments, and soil additives are defined as fertilizers by law. As such they must be labeled according to the law. The label shall contain the brand name, the common name of the product, and the grade numerals in terms of primary plant nutrients (Table 1).

### Soil Additives, Soil Amendments, and Soil Conditioners

Proof of beneficial claims will be required before registering any potting soil, mulch, compost, soil additive, soil conditioner, and soil amendment. If no claims are made scientific evidence of the usefulness and agronomic value of the soil amendment will be required. To label the product the following is required:

Soil Amending Ingredients:

1. Name of ingredient  
.....% (Identify and list all soil amending ingredients)
2. Total of other ingredients  
.....%
3. Purpose of product
4. Directions for application
5. Net volume, in lieu of net weight, may be used for labeling mulch products or materials sold for use as above-ground dressings.

### Slow and Controlled Release Nutrients

When one or more slow or controlled release nutrients are claimed or advertised, the guarantees for such nutrients shall be shown as a footnote following the listing of source materials and shall be expressed as percent of the actual nutrient.

Listing of source materials providing slow or controlled release characteristics by controlling the water solubility of a naturally soluble material (as coating or occlusion) or through slow hydrolysis of water-soluble organic nitrogen compounds shall constitute a claim of controlled release nutrient, and a guarantee for such nutrient is required.

No guarantee, claim or advertisement shall be made or required when a slow or controlled release nutrient is less than 15% of the total guarantee of that nutrient.

For further information contact:

**William R. Cox, Environmental Manager**

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**Bureau of Compliance Monitoring**

**Fertilizer Section**

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*The Florida Commercial Fertilizer Law, Chapter 576 Florida Statutes and Chapter 5E-1 Florida Administrative Code are available online:  
<http://www.doacs.state.fl.us/onestop/aes/fertilizer.html>*

**Table 1.** The Florida Fertilizer Label

BRAND NAME	GRADE	X-X-X
Guaranteed Analysis		
Total Nitrogen (N).....		_____
_____ % Nitrate Nitrogen		%
_____ % Ammoniacal Nitrogen		
_____ % Water Soluble Nitrogen		
_____ % Urea Nitrogen		
_____ % Water Insoluble Nitrogen		
Available Phosphate (P <sub>2</sub> O <sub>5</sub> ) .....		_____ %
Soluble Potash (K <sub>2</sub> O).....		_____ %
Chlorine, (Cl) Not More Than .....		_____ %
_____ % Total Magnesium as(Mg )		
_____ % Water Soluble Magnesium as (Mg)		
_____ % Chelated Magnesium (Mg)		
_____ % Total Manganese as (Mn)		
_____ % Water Soluble Manganese as (Mn)		
_____ % Chelated Manganese as (Mn)		
_____ % Total Copper as (Cu )		
_____ % Water Soluble Copper as (Cu)		
_____ % Chelated Copper as (Cu)		
_____ % Total Iron as (Fe )		
_____ % Water Soluble Iron as (Fe)		
_____ % Chelated Iron as (Fe)		
_____ % Total Zinc as (Zn)		
_____ % Water Soluble Zinc as (Zn)		
_____ % Chelated Zinc as (Zn)		
_____ % Combined Sulfur as (S)		
_____ % Free Sulfur as (S)		

Derived from: (Actual materials and in forms used in the fertilizer mixture, e.g., Diammonium Phosphate, Urea, Potassium Chloride, Magnesium Sulfate, Manganese Nitrate, etc.....)

Manufactured by:  
 Name (FXXXX)  
 City, State & Zip  
 Net Weight - \_\_\_\_\_lb