

FULVIC ACID

1. What Is Fulvic Acid's Role?

Fulvic acid is the most plant-active of the humic acid compounds. It's a plant growth stimulator that normally contains at least 70 minerals and trace elements⁽¹⁾ and increases plant metabolism and nutrient intake. It is naturally created in soil by composting and can rejuvenate soil. Fulvic acid is an excellent supplement to fertilizers to improve nutrient absorption.

1. www.hhydro.com/cgi-bin/hhydro/FulvicFAQ.html

2. How Is Fulvic Acid Applied?

Fulvic acid can be applied as a foliar spray and to the soil when watering the plants.

3. How Often Can Fulvic Acid Be Applied?

According to one report¹ when used as a foliar spray fulvic acid becomes effective in 4 hours and disappears after one week. To maintain a good level of fulvic acid it would be best to add fulvic acid when you water plants, generally twice a week.

1. <http://www.publish.csiro.au/paper/AR9880547.htm>

4. How Does Fulvic Acid Help Fertilizers?

Fulvic acid acts as a chelating agent; it holds nutrients such as iron, zinc, manganese, copper and other important plant nutrients² for the plant to absorb. Chelation in the soil improves nutrient availability to your growing plants.³ One guideline¹ recommends a mix of 95% fertilizer and 5% fulvic acid. A study conducted in China on wheat concluded that a foliar spray of Fulvic Acid allowed plant roots to absorb 32% more nutrients.

1. www.hydro-gardens.com/organic.htm

2. <http://www.publish.csiro.au/paper/AR9860343.htm>

2. http://ohioline.osu.edu/sc173/sc173_14.html

3. http://www.jhbiotech.com/plant_products/chelation.htm

5. How Can Fulvic Acid Help Plants Get More Light Energy?

One Chinese study ¹ concluded that spraying plants with fulvic Acid increased the chlorophyll in the leaves. Chlorophyll ² helps plants obtain energy from light.

1. <http://www.publish.csiro.au/paper/AR9860343.htm>

2. <http://en.wikipedia.org/wiki/Chlorophyll>

6. How Does Fulvic Acid Affect Plant Permeability?

Fulvic acid improves plant cell permeability. This means that the plant cells absorb more nutrients so fulvic acid is a great additive to fertilizers ¹.

1. www.hydro-gardens.com/organic.htm

7. What is Fulvic Acid Made From?

When dead plant tissue is decomposed (composted) by bacteria, fungi, and actinomycetes it breaks down into smaller particles that can't be broken down any more. At this point other microbes bring some of those organic particles back together as humates. Fulvic acid is the most plant active component of humic acid.

1. <http://www.localfoodworks.org/web/sa/saweb.nsf/d39dda83e1f3c019802570ad005b4516/68e4cbb7eada1a4880256f62004210ae!OpenDocument>

2. http://ohioline.osu.edu/sc173/sc173_14.html

8. What is Fulvic Acid's Effect on Root Systems?

Fulvic acid has a tremendous effect on root development, including helping cuttings develop vigorous root development. The length of wheat root has shown an increase of 500% ¹ while tobacco plants had improved lateral and secondary root development. Similar beneficial effects have been found in many other plants including cucumber, squash geranium, marigold and carrots.

Another source ² reports that fulvic acid is 'extremely beneficial' for the root development of geranium cuttings.

1. www.simplyhydro.com/hydro_humates.htm

2. www.maximumyield.com/viewart.php?article=88

9. How Much Fulvic Acid Can I Use On Growing Plants?

Based on research some guidelines are available. **Cucumbers** benefit from 100-300 PPM, **tobacco** 50-100 PPM⁽¹⁾. From actual users who have worked with 125 PPM we have had different

reports that would suggest that 125 PPM is too much for some plants. It would therefore be wise to start at much lower concentrations and wait one or two months to evaluate results before changing concentrations up or down. On the other hand another guideline recommends linking the quantity of fulvic acid to the use of fertilizer by using 5% as much fulvic acid as fertilizer⁽²⁾. If you use 500 PPM of fertilizer then use 25 PPM of fulvic acid.

1. www.growingedge.com/community/archive/read.php3?c=OH&q=497

2. www.hydro-gardens.com/organic.htm

10. How Much Fulvic Acid Can I Use On Seeds?

One research project¹ treated seeds with a seed soak of 10 PPM for a maximum of 72 hours depending on the plant species. The growing plants showed a significant increase in the root system.

For more information on improved seed germination please take a look at [Gibberellic Acid](#) and [Chitosan](#).

1. <http://www.bioag.com/fulvi-seedtreat.html>

11. How Is Fulvic Acid Also Generated By Composting?

Fulvic Acid is also created by composting cow manure¹. When cow manure is composted for 75 days it can contain 1505 PPM of fulvic acid.

1. <http://www.doaj.org/doaj?func=abstract&id=186047&openurl=1>