

## ***ACTIFERRO***

Soils of our country have certain mineral deficiencies and one of the most deficient elements is iron. Deficiency of iron is not due to lack of it in soil but due to high pH values and high content of lime. When the soil has high pH values or high lime content, iron forms insoluble compounds. Consequently, it cannot be absorbed by plants.

Light green/yellowness in plants is a sign of iron deficiency. Deficiency of iron causes veins of green color and yellowness in-between veins. Continuance of the deficiency causes yellowness in leaves.

Deficiency is first noticed in young and newly formed leaves. In severe cases, leaves may turn white as syntheses of chlorophyll stops completely. Characteristic symptom of iron deficiency is due to hindrance of growth, which again occurs due to prevention of chlorophyll syntheses. Iron is the principal element in production of chlorophyll.

### ***Benefits of iron for plant growth:***

- It has an active role in conversion of chlorophyll.
- It has a positive effect on chloroplastic protein production.
- It acts as both an enzyme and co-enzyme.
- It is required for electron transfer of enzymes.

### ***Signs of iron deficiency:***

- Symptoms of deficiency are first noticed in young leaves.
- Iron deficiency is often seen in soils with high lime content or when fertilizers with high pH values or high phosphorus content are used.
- Typically, chlorosis (yellow) is seen between veins of young leaves; veins stay green. When the level of deficiency is severe, the veins and leaves turn respectively, yellow and white.

### ***Conditions causing hindrance on iron uptake:***

- Soils with high pH values, high lime content or high EC
- Soils containing high levels of heavy metals
- Low potassium levels, low zinc or high manganese levels
- Drainage or soils with lack of air

Plants can absorb iron in cationic (+2, +3) forms or as chelated. The most effective chelate in high lime content and high pH soils is EDDHA (ethylene diamine dioxy hydroxy phenyl acetic acid).

Types of iron chelate marketed can only partially resolve iron deficiency. On the other hand, ActiFerro can ensure more effective solutions with higher levels of effect and low dosages.

### ***ActiFerro's content:***

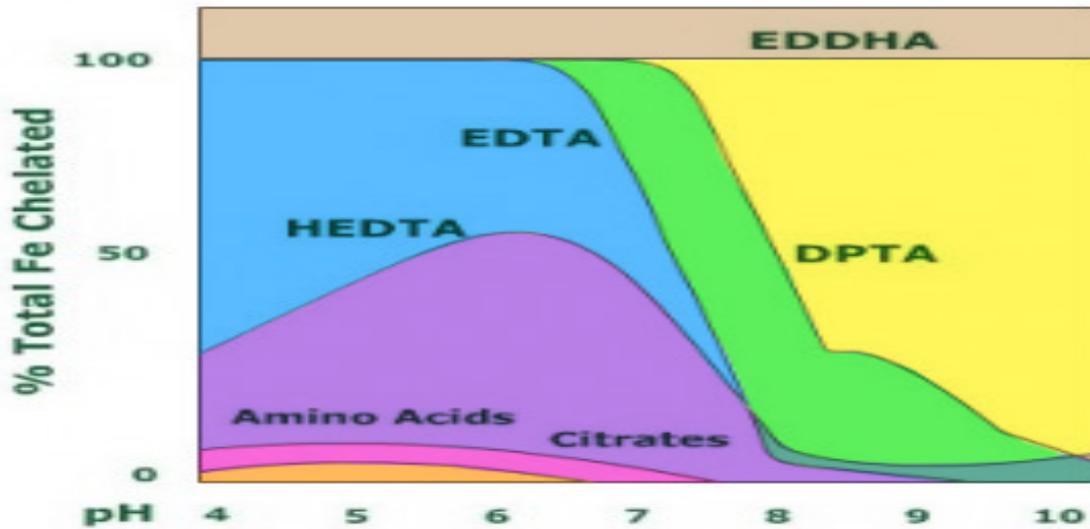
6% Fe EDDHA

4.8% ortho-ortho isomer

It is completely soluble and is in micro granular form.

**ActiFerro's properties:**

Iron in ActiFerro is completely chelated with EDDHA. Difference of EDDHA chelate is its ability to maintain stability of iron at high pH levels and in soils with high lime content. It is effective between pH values of 3 and 10.



- ActiFerro is a high quality ortho-ortho isomer of EDDHA chelate. Of EDDHA 6% chelate, 4.8 % belongs to ortho-ortho isomer.
- 4.8 % ortho-ortho isomer in the content of ActiFerro (o-o EDDHA) forms a very strong chemical bond with iron and due to strength of such a bond; it provides better results in soils with high pH values and high lime content.
- In soils with high pH values, activity of ActiFerro is faster when compared with other iron preparations.
- ActiFerro is completely soluble. Its micro granular structure does not cause dust.
- It resolves deficiency of iron in a short time.
- It ensures high productivity and high quality products.

***Suggestion for use:***

|  |                              |
|--|------------------------------|
| <b>Seedlings</b>                             | 10 - 20 grams / tree         |
| <b>Young trees newly fruited</b>             | 30 - 40 grams / tree         |
| <b>Mature trees (normal productivity)</b>    | 50 - 60 grams / tree         |
| <b>Mature trees (high productivity)</b>      | 60 - 70 grams / tree         |
| <b>Citrus trees</b>                          | 60 - 80 grams / tree         |
| <b>Vineyards</b>                             | 600 - 800 grams/minute/total |
| <b>Ornamental plants</b>                     | 5 - 10 grams / tree          |
| <b>Vegetables (greenhouses, open fields)</b> | 600 - 800 grams/minute/total |
| <b>Field grown plants</b>                    | 250 - 350 grams/minute/total |

- Adapt fertilizer applications depending on the frequency of plantation (dwarf or semi dwarf trees).
- It can be applied directly to soil as a solution or may be applied by injections, drip watering, and normal watering.
- It can be applied easily by mixing it with soils of plants in fruit trees' yards and vineyards. Sufficient watering following its application is recommended.
- It should not be mixed with other products containing copper and/or lead.
- Suggestions are given as examples. It is recommended that selection of fertilizing type should be made based on the soil and leaf analyses and only after consulting a specialist agricultural engineer of Toros Tarm.