



# Ferbon

## FF50

### BIO-HUMATE

#### Soil Conditioner

Part of the Ferbon® Bio-humate® range of Hi-Tech prepared organic soil life builders for commercial operators who are seeking to raise their soils fertility.

Much less labour and costs over time are experienced by using Ferbon's FF 50 Bio-humate Soil Conditioner rather than pure green manures, composted green waste or animal wastes.

**Ferbon® FF 50 Bio-humate®** is a unique soil life enriching blended product especially formulated and prepared over time for broad acres or when price is a very significant factor.

- ◆ 100% organic product
- ◆ Rich in humic acids
- ◆ Contains many trace elements
- ◆ Highly paramagnetic
- ◆ Retains more than three times its own weight in moisture
- ◆ C.E.C. 740(me/l)
- ◆ Natural humus home for healthy soil microbes

Blend of crushed prepared soft young brown coal (very high in humic acid) (550kg/tonne), paramagnetic additive (CGS over 7000) and a BCA® enhanced biomass.

The biomass includes natural nitrogen, phosphorus, potash, and high population of microbe's etc. Biomass itself is a home and stimulator for microbial life: both beneficial fungal and bacterial.

The trace elements in the brown coal and Biomass are low, so consideration should be made about adding additional minerals; this will depend on crop needs and exchangeable nutrients already available in the soil.

#### Typical Analysis for Ferbon FF 50 Bio-humate

Nitrogen	1.34%	Copper	91ppm
Phosphorus	0.199%	Cobalt	11.8ppm
Potassium	0.462%	Boron	54.7ppm
Sulphur	1.77%	Molybdenum	9ppm
Calcium	1.48%	Selenium	<2ppm
Magnesium	0.279%	pH	6.2
Sodium	0.246%	Electrical	
Iron	9100ppm	Conductivity	µS/cm3255
Manganese	488ppm	Organic Carbon	37.5%
Zinc	142ppm	Moisture Content	35.4%

**\*Note:** High levels of sulphur- an essential for protein development. As this is an organic material from a big mine site there are variations in the non humic acid/ carbon components, and also it is only part of the base blend that matures under composting before being released

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*"Humus must be considered the life blood of the living earth - vital to healthy plant growth. A man with no blood is dead - and a soil with no humus is equally dead and useless.*  
-W.E. Schewell Cooper in *COMPOST GARDENS*

Humus is the life of a soil. It is the bridge between the biological and the chemical. High performance soils consist of 25% air, 25% water, 45% minerals and 5% humus. Soil fertility researcher, the late U.S. Professor William Albrecht found humus to be made up of 50% minerals, 25% air and 25% water, practically the same as highly fertile soils. Humus in adequate amounts reduces erosion and depletion of minerals.

Humus is essential for soil structure, nutrient status and potential disease suppression. Humus is the main source of energy and fuel for the microbial populations. Humus enables microbes to carry out antibiotic effects in the soil. It helps bacteria survive cold, wet, or dry conditions. It allows the interaction of microbes and plant root systems and buffers the excesses of pH fluctuations and cation imbalance. Humus helps to enhance the anionic forms of carbon, nitrogen, phosphorus and sulphur allowing greater plant utilization of nitrogen, calcium, magnesium and iron, already in the soil. It helps to 'unlock' tied up phosphates.

#### **NATURAL HUMIC and FULVIC ACID COMPLEXES**

Humus can be defined as the end product if the decomposition of organic matter by aerobic organisms. Humic and fulvic components are developed by chemical concentration over time and under influence of anaerobic microbes. Humic and fulvic acids serve many complex purposes in the soil. Humic substances are colloid and coat soil particles, acting as a cushion and an interface between the dead minerals of the soil and the living plant root. Without this coating the soil can become a gummy mass. With it, the soil becomes friable and granular in structure. These humic substances possess a high cation exchange capacity, which means that it helps hold the essential cationic elements ammonium, potassium, calcium etc. In the absence of the clay or humic colloid, the cations are either lost by fixation or leaching, and thereby they are lost to the plant roots. Humic substances are very complex and are different depending on conditions and minerals available. Lighter molecular weight humic acid family members are the fulvic acids, and the more complex are the humic acids.

**NOTE:** Biological activity in Ferbon® FF 50 Bio-humate® allows valuable gases to develop so that when Ferbon® FF 50 Bio-humate® is incorporated with the soil's moisture and oxygen then carbonic acid and aqueous ammonia are produced, two soil life builders.

#### **Uses of FF 50-**

- ◆ Soil conditioning and basic fertility raising by the supply of stable humus, fulvic and humic components.
- ◆ Component of fertility boosting in conjunction with either another hi-tech organic Bio-humate® granular and or fish/seaweed ground sprays. Also home for nitrogen fixing and phosphate releasing microbes.
- ◆ Base for a soil blend for use by nursery/building supply/turf companies.
- ◆ Enriching regular compost with humic and fulvic acids. Most compost is extremely low in "life" raising humic and fulvic acids, due to time limits.

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#### **APPLICATION**

##### **Soil Conditioner**

Spread and rotary hoe or till into first 4" to 8" of top soil where the plant feeder roots reach. Rate of application varies according to crop and a number of applications may be used over each successive crop to reach 5% stable humus level. It is most important to remember that Ferbon® Bio-humate® is not straight brown coal nor 100% humic acid but a special blending of a number of integrated fertility raising materials and microbes.

**NOTE:** It is important to use our Ferbon® Fish/Seaweed Base Ground Spray OF 34 with FF 50 to supply additional nutrients such as nitrogen and trace elements.

##### **Guide to Use**

To increase the stable humus/humic acid content of a ground bed using FF 50 to use this guide. 1 tonne of FF 50 spread over a 1 metre (39") bed incorporated to a depth of 100mm (4") would give an approximate increase of 1% if the bed were 1460 metres long.

##### **Component of Fertility Booster**

As above but blended with higher-grade fertilizer application for soil type and plant needs. Do not blend in any ammonium nitrate into Ferbon® FF 50 Bio-humate®. Use sulphate forms of various macro and micro nutrients.

##### **Blended Soil Component**

Use with a blend soil clean river sand at the rate of 5% to 10% of FF 50, i.e., 50kg to 100kg per 1 tonne depending on soil source and depth of application. For Hi-Tech Agricultural work always use soil, tissue and leaf analysis to monitor crop growth.

##### **Compost Boosted Soil Conditioner**

Add FF 50 to clean green waste compost such that the finally matured product will contain about 200kg of FF 50 per tonne . a good blend involves shredded green waste (grapevine, leaves) animal manure (cow, horse etc.). Green waste will compost down to about 16% of original volume.

A special feature of Ferbon® FF 50 when blended at the beginning is that the humic material will absorb ammonia or aldehydes being released.

For more information regarding this product and the full range of Ferbon Bio-humate products contact:

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