

CARBON FERTILISER TECHNOLOGIES

EFFECTIVE AGRICULTURE TO PROSPER HUMANITY





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BIOLOGICAL ASSIMILABLE CARBON

The plant nutrition technology of the future

WHY CARBON?

Farmers are increasingly finding it more difficult to obtain optimum results trying to manage plant nutrition through chemical means alone. The reason for this is that a pure chemical approach to nutrition disturbs the soil balance and has a negative impact on soil life and fertility. This in turn reduces the plant's ability to absorb nutrients. The latest trends are towards a more biological approach and specifically practices that improves soil carbon content and soil life. These practices include cover crops, mulches, compost, microbial inoculants and organic acids such as amino-, humic- and fulvic acids.



COVER CROPS



MULCHES



LIFE IN TOPSOIL

What could be the reasons for these trends?

- Carbon has “receptors” that binds nutrients and thus prevents a certain amount of leaching.
- Some carbon sources (eg. humic- and fulvic acids) has a very high Cation Exchange Capacity (CEC) that tend to keep nutrient in the root zones for longer.
- In addition it reduces and even reverses soil compaction.
- Carbon serves as a nutrient source for micro organisms, which in turn is responsible for the mineralization process through which minerals are made available to the plant.
- “Living” soils and soil that are high in organic material tend to have a much higher water retention capacity.
- Organic acids “unlocks” nutrients that are “locked” in the soil and effectively allows one to “mine” soils in order to improve nutrient balances in the soil, which in turn improves that plant's ability to assimilate other nutrients.



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WHICH CARBON?

It is important to note that not all carbon is beneficial for plant and soil life. Diamonds, anthracite, coal and charcoal for example are high in carbon but can make no contribution to plant life and soil fertility. Humic- en fulvic acids are extracted out of peat and soft coals and is very effective carbon source as a result of the process that was applied. A basic rule of thumb is: "The softer the carbon the better it is for the soil and the plant."



CEC Examples

| Soil / Product | (cmol/kg) |
|----------------|-------------|
| Sand | 1 - 5 |
| Clay lime | 15 - 30 |
| Compost | 25 - 35 |
| Humus | 200 - 400 |
| Peat | 10 - 30 |
| Coal | 0.92 |
| Charcoal | 2.83 |
| Humic Acid | 400 - 600 |
| Fulvic Acid | 1000 - 3000 |

CFT's BIOLOGICAL ASSIMILABLE CARBON (BAC)

CFT has enlisted the services of a team of scientists in Stellenbosch, who has developed a complete range of liquid, carbon enriched, fertilisers in order to maximise all the benefits of carbon as detailed above. All fifteen product offerings have been registered in term of act 36 of 47.





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The CFT mixture has the following characteristics:

- It has a high organic carbon content.
- The type of carbon is beneficial for plant life and microbial growth.
- It contains a variety of organic chelates (complexing agents) and stabilisers
- It has a particularly high Cation Exchange Capacity (CEC)
- The carbon is completely dissolved and not just in suspension.
- The BAC (Biological Assimilable Carbon) mixture dissolves completely in the chemical nutrient solution and does not settle out.
- It has a long shelf life of in excess of a year.

CARBON RELATED RESULTS

The following results are results which our international irrigation and fertigation consultant, Mr Japie Kruger, has achieved at clients all across South Africa and abroad. With carbon enriched fertilisers.

The Carbon enriched fertilisers has enabled him to obtain similar and better farming results, whilst significantly reducing fertiliser cost in relation to a pure chemical fertiliser program.

This has allowed him to achieve savings for the farmer on his yearly fertiliser program that vary between 10% and 30% Below is a typical example of a Citrus farm:

Cost comparison (Carbon vs conventional)

| Year | COST (Rand/ha) | | Cost of carbon program in relation to conventional program | |
|------|----------------|--------------|--|---|
| | Carbon | Conventional | % | %(including a 10% mixing cost for conventional) |
| 2007 | R 3888 | R 4532 | 86 | 77 |
| 2008 | R 5678 | R 7251 | 87 | 78 |

The results above have been duplicated for a variety of soil and crop types and climates.

You are welcome to contact the supplier detailed to the right, should you like to explore the benefits that a carbon fertiliser program can bring. He should be able to answer any questions and arrange a trial if needed

