



raiseFOOD

Organic Carbon
Fertilizer Plant



RAISE FOOD™ has developed a 100% organic carbon fertilizer that has improved yields in tested crops and within certain soils, tested by farmers, with more than 120% compared to the previous yields obtained from the same land. The results on maize has increased the corn cobs from 3x corn cobs per plant, up to 12x corn cobs per plant. The quality of the vegetables and fruits are also significantly better, with a greener color on the actual corn plant leaves – that shows a significantly increased health of the vegetable plant.



Figure 1.1: Healthy bright green color of vegetable plant indicates good health of soil and plant.

The reasons for this improvement in yield is the following:

1. The carbon retains the water within the soil – due to the increased adsorption surface area
2. All of the nutrients are retained within the carbon elements of this fertilizer
3. The soil will not become fallow due to the retention capabilities of the organic carbon fertilizer
4. The actual structure of the soil is improved. It has a loose and healthy consistency.
5. The Soil does not become acidic due to the unnecessary addition of hard Chemicals
6. Due to the above the water table and quality of the water does not get negatively affected by unwanted chemicals
7. The fruit and vegetable growth responds positively due to the natural microbes within the soil, improving plant health. No artificial chemical boosting is at play.
8. The fruit and vegetables are 100% naturally grown, and are significantly better suited to the consumer.

The current carbon fertilizer with liquid additives is a natural organic “hybrid fertilizer” with a high fixed carbon content. The product qualifies as a 100% “organic” fertilizer, that is produced from organic additives and processes which makes it a 100% natural product, without any chemicals added. The product is based on the level of fixed carbon content, contained in the product, and it contains all the inorganic micro and macro elements chelated onto the carbon backbone. It does not fall into the compost category, and also not into the traditional NPK fertilizer category. It is a niche-mark product, which improves the microbial health of the soil. The microorganisms in the soil, now have a safer “home” to stay in (granular component), and are fed a healthy diet of organic feed (liquid component).

Traditionally the fertilizer is prepared during a wet process, where a liquid feed fluid is produced. For application purposes the planned plant will also include a pelletization plant that will convert fluid fertilizer into a solid kernel. The fertilizer cannot just be blended /mixed by anybody; it has to be prepared in a certain blending sequence to facilitate chemical reactions required to construct the carbon backbone onto which other elements are sequestered. These chemical reactions are endothermic, so the factory will not be difficult to license or a danger to the surrounding habitat, due to this process being a very safe product. The soil that receives this fertilizer retains water much better – this is due to increased adsorption surface created in clay layers affected by the CEC of the fertilizer.



Fig. 1.2: Fertilizer has a liquid and a pelletized/granular component to it

This product stimulates the soil ecology and facilitates an environment where naturally occurring bacteria can propagate and where organisms and insects can survive – which is contrary to the standard NPK fertilizer, which leaches soil and destroy the environment of these organisms.

Because of these aforementioned environmentally friendly factors, the fertilizer will be attractive for the “organic” or sustainability movement, for end users in the higher value products range (i.e. Woolworths, Walmart, High Quality Export Markets such as USA, UK and Middle East, etc.)

This fertilizer has been used consistently for 8 years by a commercial farmer that wanted to make his own fertilizer due to a soured relationship with a large fertilizer manufacturer. Our farmer collected data on his soil health, and the effects over an 8-year period in terms of soil health and production is remarkable. This farmer used 40% less fertilizer than he did with the other large fertilizer company products, improved his soil carbon content from 0.03% to 1% and was able to implement limited tilling practices which facilitated further saving on crop input cost. His soil compaction is very low. His soil moisture profile is now very good and constant throughout the year. Prior to using the carbon fertilizer, this was quite the opposite, and was not at all the case before he started using the carbon fertilizer.



The fertilizer plant is fully scalable. In other words, the plant can be sized to a tailor-made output (tons/annum) for individual clients. The current business model is based on a plant that has a 200,000 ton/annum output for a single 12-hour shift, or 400,000 tons/annum if there are two 12-hour shifts per day. The average ROI for the fertilizer plant is calculated between 25% and 29% depending on the composition of the fertilizer being produced (e.g. certain mixes will be more expensive and labour intensive than others).

We require an estimated **US\$125 Million** to complete and construct this organic carbon fertilizer plant which will require carbon, as input material from the PyroFlo carbonization process, as infeed to produce the final granular and liquid carbon fertilizer products.



Estimated costs to complete a full feasibility study for the construction of an organic carbon fertilizer plant, would be approximately US\$2.5 Million. These proceeds would be used to complete the following for the planned facility:

1. Engineering team site visit and assessment
2. Agricultural situational and soil condition analysis assessment
3. Basic environmental assessment
4. Fertilizer plant layout and drawings
5. Construction costing
6. Plant costing
7. Full financial modelling
8. Full feasibility and viability
9. Project plan and milestones
10. Consolidated business plan