

Soil Fertility ensures Farmers profits!



PHYSICS

- tilth
- aeration
- moisture retention
- exchange capacity
- buffering

BIOLOGY

- heterotropic bacteria
- fungi
- actinomycetes
- pseudo-monads
- N-fixing bacteria

CHEMISTRY

- Fe B Ca Cu
- K P N Mg
- Na S Zn ph

// The health of soil, animal, plant and man is One, and indivisible.
- Albert Howard

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The link between soil fertility and on farm sustainable profits has been proven throughout history. You cannot produce good yields and quality crops from depleted soils, no matter the budget spent on expensive fertilizers, growth promoters and pesticides to try and produce a high-yielding crop. Disaster and crop loss can result at any time. The only way to achieve sustainable production is to “farm the soil” by investing your efforts and money for compounded returns in improved soil fertility.

How to “Farm the Soil” for improved fertility

Soil fertility depends on 3 vital systems: Biology, Chemistry and Physical structure

Chemistry is influenced by Carbon, pH and minerals (plant nutrients).

Carbon: Increasing the Carbon levels or soil organic matter (SOM) is where soil fertility starts and progresses very quickly when you use methods like composting, green manure crops like sorghum, legumes, include crop residues or applying a mulch layer over rootzones of tree crops or between planting rows of field crops. Talborne Organics fertilizers are carbon based to build soil fertility.

Tip: The fastest way to build carbon levels in the soil is when a living mulch of plants cover the soil surface between row crops or trees to sequester sun energy to convert to plant energy through photosynthesis. This energy is fed through the plants roots as carbohydrates and sugars to microbes to build up the carbon levels in soils.

pH: Take a soil analysis to check for pH, and correct the soil chemistry by for example adding lime where required to correct low pH or acidic conditions during soil preparation before planting any new areas to optimise fertilizer program and nutrient uptake for productive crops.

Plant nutrients: Use a well-qualified advisor to maximise the fertilizer budget. Take a soil analysis every year post-harvest for correct fertilizer planning for the new season based on tree age, kg yielded and the target yield. The higher the target yield the more nutrients the crop needs, or else the

next crop cycles nutrient reserve will be depleted. To replenish the full crop nutrient requirement, choose from the granular or liquid Talborne Organics fertilizer ranges.

Remediate deficiencies like low Phosphate to ensure the plant can provide the energy needed for efficient photosynthesis for good yields. Excess Sodium from irrigation water, heavy use of chemical fertilizer or animal manures prevents the efficient uptake of Potassium which results in poor fruiting crops and low resilience to fungal disease. Use techniques to reverse this concern like leaching out excess sodium to promote the uptake of Potassium

Physical or soil structure is determined by soil texture, organic matter content, moisture holding, biological activity and soil chemistry

Soil qualities and texture in crop farming will determine which crops are suited to which soils. The soil depth will also be an important consideration for crop selection as shallow soils will not allow for root crops like potatoes or carrots. Shallow soils hold less water in reserve for successful crops but might be suited to hardy herbs with lower water requirements.

Very sandy soils drain freely so water holding, and

nutrient retention are poor, this results in water and nutritional stress especially in droughts. Low calcium levels and high magnesium levels can be the cause of dense, tight clay structure which results in poor drainage of rain or irrigation water causing root rots or fungal diseases.

Building organic matter, biological activity and soil chemistry (see above Carbon levels) in soil can change the structure of sandy or clay soils to a friable texture and improve drainage and water retention at the same time. This is the magical process where plants, organic matter and microbes work together to regenerate poor depleted soils to healthy productive soils again, if only we can give them the chance!

Biology consists of a healthy living soil ecosystem that maintains fertility.

Beneficial micro-organisms and soil insects: There is such a diverse and rich range of bacteria, fungi, nematodes that thrive and contribute to fertile soils. Talborne Organic fertilizer ranges are microbe and plant food and activate living soil to promote fertility.

For too long farmers were told that soil is just a dead substrate to hold roots, and all chemicals required for successful crop farming can be supplied by the industrial fertilizer companies. Years later our young generation of farmers are battling dead and depleted soils that cannot sustain yields and quality of produce without resorting to adding higher levels of solid and foliar fertilizers, pesticides and biostimulants to grow a crop.

Beneficial soil life is a crop protection force against attack by root feeding nematodes and fungal diseases like phytophthora that challenge many farmers especially on tree crops. Correct balances of beneficial soil microbes are an unrecognised labour force being valuable recyclers of plant nutrients and soil conditioners.

Avoid inputs like poisons, synthetic fertilizers, pesticides and herbicides that kill the soil life, cause toxicity in food, pollute soil and water sources and do damage to ecosystems such as birds, insects and pollinators.

Visit www.talborne.co.za for more information.

Soil Health and Correct Plant Nutrition = Profits and Sustainability in Farming

- Increased yields & pack out rate
- Improved quality, taste, nutrient density & shelf life
- Resilience against pests and disease & the effects of climate change
- Reduced input costs