

FARMING ORGANIC CITRUS IN SA

The Learning Curve

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The brand Outspan Citrus, like Springbok Rugby is synonymous with South African excellence and has a respected reputation as a supplier of quality citrus to the world that dates back to 1926.

Schools history lessons taught that the very existence of South Africa can be traced back to the establishment of the Cape Colony Gardens in 1652 as the supplier of fresh produce to VOC Dutch Trading Ships passing the tip of Africa on route to India and the Far East to procure Spices, Silk, Ivory, China and many other luxuries that the European consumer desired.

Citrus, especially, was important to prevent the disease Scurvy responsible for the illness and death of the ship's crews from deficiency of Vitamin C. Citrus was rich in Vitamin C and had great storage ability on long journeys at sea

So how did the original Dutch settlers produce citrus in sufficient scale without modern chemical inputs of fertilizer, pest, disease and herbicides? Perhaps organically by the clever use of available natural resources?

Some pioneering farmers chose to return to nature by combining ancient and modern organic farming methods and inputs to regenerate soil fertility. It is not easy to change from "high chemical input-high yielding" farming practise, to "high yielding" organic farming. But fortitude from knowing what your goal is, is your most important tool on this journey!

There is a growing market of health conscious consumers who are demanding nutritious and safe food, and therefore the demand for certified organic citrus is increasingly of interest to farmers wishing to supply to this quality market.

Some of the biggest challenges SA's organic Citrus farmers have had to overcome in my experience are:

ORCHARDS ESTABLISHED ON VERY POOR SOILS:

- Soils are often very low or deficient in ALL nutrients, so if citrus trees are very hungry and stressed from initial planting when soil remediation (amelioration) and preparation have not been professionally done like: pH adjustment, phosphate applied, chemistry balanced by leaching out excess salts (Na) and Calcium(Ca): Magnesium(Mg): Potassium(K) ratios adjusted.
- Under the guidance of experienced advisors, using soil analysis and soil health tests preferably before planting or converting from conventional farming, a plan of action can be drawn up to map this journey to successful organic farming. A wide range of inputs are available to Organic Farmers through Talborne Organics.

- The carbon content in soil should be increased with compost and green manure to restore soil life and structure to dead and depleted soils before planting.



Young Certified Organic Lemon trees planted with Talborne Organic Fertilizers'

NUTRIENT DEFICIENCIES:

- Very careful attention should be given to supplying adequate nutrient availability to optimise yields required for citrus crops, so focus should not only be on Nitrogen(N): Phosphate(P): Potassium(K), but Calcium(Ca): Magnesium(Mg) and micro-nutrients like Iron(Fe): Zinc(ZN): Manganese(Mg): Copper (Cu): Boron(B) if deficient can limit yield, abort flower and fruits and increase incidence of pest and disease unnecessarily.

Healthy Soil = Healthy Plants = Healthy People

NUTRIENT DEFICIENCIES cont.:

- Talborne Organics fertilizer ranges offer high nutrient, formulated blends containing all Major, Minor and Micro nutrients to meet most crop requirements as determined by soil analysis for commercial production.
- Regular leaf analysis will identify nutrient deficiencies or imbalances and corrective foliar or fertigation applications can resolve this quickly to prevent loss and damage or the limiting of crop yields. As illustration common pest attacks such as heavy aphid infestation can be indicative of Magnesium deficiency. Citrus Psylla is caused by soft leaf cells and cuticles resulting from low levels of Calcium(Ca): Potassium(K) and tree stress amongst other deficiencies



PREVENTING ROOT ROTTS & DISEASE:

- Avoid planting orchards in wetland and river floodplains where soil structures are separated with very sandy soils on top and clay hardpan in deep root zone. This prevents good drainage of rain and irrigation water resulting in root rotts and anaerobic conditions which promote pathogens and tree stress. If such land is to be planted installation of irrigation and drainage structures should be done before planting.
- Very sandy soils where water and nutrients leach beyond the root zone too rapidly result in water and nutrient stressed trees which cannot support the demands and production of high yielding orchards. Therefore, soil remediation, green manure, compost and cover crops should be used to condition soils before planting or converting to organic farming.

WEED CONTROL:

- Weed Control in all commercial farming is always a challenge, BUT the biggest headache to the new organic farmer is not using herbicides because of the toxic residues left in fruits, soil, air and water pollution, and the devastation caused to the living soil ecosystem.
- Soil remediation is known to be effective in controlling persistent weeds as weeds will grow when they find their ideal conditions to flourish, so organic farmers use weeds as indicators of soil imbalance or poor structural conditions such as low nutrient or carbon levels or soils with poor drainage.
- Suggested organic methods can be used such as mowing or cutting weeds between rows and on the dripline under trees, covering with organic mulch from crop residues such as pruning waste, straw, wood chips, leaf material, growing mulch such as natural vegetation or planting suitable cover crops, or a secondary commercial crop to suppress weed germination and growth.
- Weed control should be done before seed heads form or else the matured seeds will add to the rich weed seedbed just waiting for the ideal conditions to generate the next crop of weeds.
- Woven textile mulch or weed guard can be used in intensive or extensive orchards if the cost of installation can be justified.

EFFECTS OF CLIMATE CHANGE:

- The full evidence of climate change is now undisputed and being felt by extreme weather cycles of droughts, floods and hail damage as well as mostly very high temperatures in peak periods such as early or late flowering or a second flowering, bud drop, poor fruit formation or aborting after scorching hot and dry winds.
- Long or very cold winters can result in cold soils and delayed blossoming. Careful consideration of future climatic and growing conditions should be researched in the planning of new citrus orchards, together with the best citrus varieties for seasons and rain patterns.

EFFECTS OF CLIMATE CHANGE cont.:

- The choice of variety and spread of growing and harvesting periods to mitigate risk as well as ensuring a constant income stream for the farm and efficient utilization of farm and contract labour must be part of the plan.
- The recent years of constant droughts have highlighted the importance of on farm dams for ensuring a backup water resource for when the rivers and shared water supply cannot ensure quotas are filled, then especially citrus which is a high water use crop will result in loss of quality and yield
- Many of the citrus areas are now experiencing crop devastation by hail damage in areas that were not traditionally known for hailstorms.



Hail Damage on certified organic citrus



PEST & DISEASE CONTROL:

Years of poor farming methods such as the heavy use of harsh and toxic agricultural chemicals and neglecting regenerative practises such as building up carbon and balancing chemistry have left soils devastated and depleted with limited moisture holding capacity and no resilience to climate change variances which causes stress in citrus trees.

- This results in increasing fungal diseases which limit access to lucrative export markets, reduced storage and shelf life required for shipping and distribution to markets.
- Also higher incidence of pest attack and therefore use of more pesticides with either long withholding periods or risk of market rejection due to residues not meeting consumer safety standards. The quality fruit market now demands NO RESIDUE in fresh produce and increased testing using sophisticated detection methods can incur severe losses in production, shipping and dumping costs to farming businesses. Therefore, the new farming methods of building resilience to prevent disease and pest attack and working within nature's ecosystems is recognised as the lower input, cost saving and modern approach by quality producers.
- When outbreaks do happen, determine the cause and react with urgency by choosing the softest option at early stage of infestation, such as beneficial predators, IPM, application of foliar feed to strengthen crop cells and immunity, adjust irrigation scheduling to correct the problem, i.e. "Nipping the problem in the bud" will save your budget and most effectively rescue your crop potential.
- This is achieved through correcting soil chemistry, increased soil fertility and carbon content, supplying balanced organic fertilizers with all the nutrients, including micro-nutrients which are essential for healthy and productive crops, optimal water application adjusted for season, and to track and trace potential problems before they manifest such as soil, leaf and sap analysis, water probes, drones and satellite technology.

CITRUS BLACK SPOT – Video of How it spreads - Click to watch

