



## To Whom It May Concern

March 2009

Austrahort has engaged Sydney Environmental & Soil Laboratory (SESL) to help design a soil improver additive specifically to address the soil deficiencies found in much of the Middle East (ME). SESL has many years experience in the design of soil improvers and has assessed many currently used in the ME and worked directly on the island reclamation projects in Dubai. The fine Aeolian sands that form the basis of these landscaping projects lack organic matter, clay minerals and are particularly deficient in manganese, copper and iron. Fine sands make the basis of some of the best horticultural soils in the world but lack the clay minerals and living organic matter that make for fertile soil. In summary the ME sands show-

- poor water holding ability
- very low biological activity
- specific trace element deficiencies (iron, manganese and copper)
- low nutrient holding (cation exchange capacity).

Many of the soil improvers I have seen used in the ME make exaggerated or false claims. Synthetic polymer products, for example, result in no improvement in "available soil water". They may hold water at low tensions but since they do not hold water at normal high tensions they make virtually no difference at realistic soil tensions in dry climates. Also, they are biologically sterile, have no cation exchange capacity, and degrade rapidly. Some of the mineral soil improvers greatly exaggerate cation exchange and available water properties.

With Austrahort we have used naturally occurring high charge clay minerals (smectites) that are well know for their high, permanent charge cation exchange capacity (80-120cmol<sup>+</sup>/kg) combined with high nutrient naturally pasteurised composted organics and targeted trace element additions to make a soil improver that can double the available water capacity of sands and more than triple the cation exchange capacity permanently.

There are no gimmicks here, the Austrahort soil improver will add only those things the ME sands need; organic matter, beneficial microorganisms, high quality clay minerals and targeted trace elements. These are the only things required to turn sand into good quality soil.

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