

# Case-study By Trevor Galletly<sup>1</sup>, Peter van Beek<sup>1</sup>

## Avocado & Peanut Restoring Soil Biology

### Summary

Humic acid and Liquid Sea Minerals were applied to avocados. At harvest the fruit weight was increased by 10%. By supplying soil biology foods, the soil structure and nutrient availability improved thereby allowing heavier fruit to be produced.

### Avocado Trial

The trial was conducted on an Avocado farm in Childers.

The treatment consisted of applying Humic Acid at 15L/ha and Liquid Sea Minerals at 5L/ha to three rows of the Sheppard variety. Application was by injection into the under-tree irrigation. The first application was on 3 October 2018, a second on 29 November and a third on 26 February 2019. The treated rows were in the centre of a field and the adjacent rows were the control.

By 8 May 2019, the soil in the treated area felt softer and wetter than untreated rows. This was assessed by feel by two farmworkers and two trained ag-consultants who all agreed.

At harvest, the average bin weights in the control rows each side of the treated rows was 416 kg. The 10 bins from the 3 treated rows averaged 460 kg, an 11% increase in weight. This indicates more sugars and minerals in the fruit.

Sugars are produced in leaves through photosynthesis. This is the complex process in which plants combine sunlight with water from the soil and carbon from the air into sugars. It needs many minerals to work well.



Leaf sugars were measured with a refractometer\* on 2 April and 8 May 2019. On both occasions, the results, called Brix readings, were 10% higher in the treated rows compared with adjacent control rows. Higher Brix readings mean healthier plants and the healthier a plant is, the less attractive it is to insects and the more resistant to diseases.

An increase in sugars also indicates an increase in the minerals that gives fruit its distinctive taste. As approximately 50% of plant sugars are exuded via the roots to soil biology, this means that plants in turn can increase soil carbon levels and structure. Thereby allowing the soil biology to provide more minerals back to the plant in exchange for the sugars. This starts a virtuous upward cycle of improvements.

A rough calculation shows for an outlay of \$200, a return of \$600 was achieved, along with lasting soil improvements.

### Peanut Trial

Applications of Liquid Sea Minerals 5 L/ha and Humic Acid 15 L/ha were applied by boom spray soon after emergence and followed by overhead irrigation. Later in the crop, Brix readings were 20% higher. This resulted in only a small yield increase but gave almost 50% increase in large Jumbo grade which commands a premium price. This gave \$520/ha increase in returns to the farmer.



For details and further information: <https://tinyurl.com/mvecbpm2>  
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\*A refractometer is a hand-held device that measures the sugar content of a solution and is expressed units called Brix.