



# Reduce the Impact of Weather Conditions

Earthlife's involvement with growers producing avocados, citrus, low chill stone fruit, mangoes and small crops throughout southeast QLD and northern NSW areas has identified a thread of similarities in challenges as faced by growers over this wide variety of crops.

The recent and prolonged lack of rainfall has meant a greater reliance on irrigation and this has highlighted several factors relating to tree growth and fruit quality, the most important of these being the lack of attention to soil organic matter levels. This influences water holding capacity and infiltration rates, adequate supplies of an available balanced nutrient content in the soil and watering efficiencies and scheduling.

The decay of the organic debris is brought about by the activities of various groups of bacteria, fungi, protozoa, and other inhabitants of the soil. Although much of the humus has its origin from aboveground plant parts, large amounts are also formed from root decay and a smaller amount from the remains of soil organisms. Humus is dark in colour, light in weight, and more or less intimately mixed with the mineral soil components.

**The marked effect of humus upon water conservation and storage of nutrient can not be over emphasised.**

Its effect in improving the physical condition of the soil is marked. It acts as a weak cement to bind sand, lightens or opens a clay soil by separating the particles, and thus increases percolation, aeration, bacterial activity and root extent as well as the ease of tillage. Being very absorbent, it helps to retain water so that in regions of moderate rainfall, crops grown in soils rich in humus are less likely to suffer from drought.

Careful estimates from experimental data show that the loss of humus through soil erosion under a precipitation of 650mm is probably equivalent to a decrease of 150mm in rainfall. Soils that have lost humus are harder to work and poorer in tilth; they crack easily and expose greater surfaces to evaporation.

Depending on soil types, Nitrogen can be leached at rates between 50–100 kg/ha per year from orchard crops. Recent research attempts to put a finite figure on the humus's ability to store nutrient in orchard situations, that are mulched and contain healthy populations of microbes, estimates that a 64% increase in Nitrogen being held within the soil. This is a very stable form of Nitrogen and is not easily leached from the soil.

It becomes clear that the management of mulch and micro organisms can be a significant source of non leachable, sustainable plant nutrients as well as a means of weed control, root temperature maintenance and water evaporation control.

**It is just as importance to regulate irrigation applications as supplying adequate nutrient.**

Growers acknowledge that low pH and relative unavailable Calcium and Boron prior to and during flowering can be responsible for poor fruit set and consequently fruit size. However, lack of moisture or over watering at this time will create similar results.

Degradation of soil organic levels through supplying nutrients to crop on an as needs basis, rather than building a better quality soil results in crops unable to accommodate variances in weather conditions resulting in small fruit size and lack of tree growth.

A tree crop is best treated with a long term fertiliser programme as most tree crops take 1- 2 years to set, bear and harvest their fruit, unlike short term vegetable crops which germinate, flower and ripen in months.

This brings challenges for water soluble fertiliser programmes. Growers must continually prune off excessive water shoots as a result of a simple imbalance of nutrients and again supports the reason why acid release fertiliser provides a more robust nutrient available system. After all, **How did plants access nutrients before the advent of water soluble fertiliser?..**

Building a healthy soil provides the long term sustainability of readily available nutrients. To achieve this, the use of mulch in conjunction with Earthlife Minerals and Stubble Mate provide an economical and reliable alternative to urea as a source of nitrogen.

Marketing agents of growers who have implemented Earthlife's "Soil Enhancement System" have identified the improved quality in their growers produce.

Please contact Alex or Ian through our "contact us" page or phone 1800 819 003 to enable us to assist you in your future endeavours.