

Organic advance

By SHANE FITZGERALD,
Total Grower Services

THOUSANDS of comprehensive Petrik soil tests across a range of soils in the Wet Tropics have provided the data required to allow the chloride compound muriate of potash to be an allowable input in the updated and soon-to-be-released Biological Farmers of Australia (BFA) organic standard (OS), version 7.

This is a major breakthrough for organic producers or producers considering organic production, particularly those in the Wet Tropics region.

At the 2005 Organics Conference in Cairns, Shane FitzGerald, of Total Grower Services (TGS), highlighted the important role that chloride plays in calcium availability in the soil solution and subsequently plant health.

TGS has lobbied for chloride to be an allowable input for a number of years, as it is a major constraint for FNQ producers who wanted to grow organic produce.

The majority of biological farming consultants advise against the use of chloride compounds.

In many climates, they are

correct and, indeed, most Australian soils suffer from an excess of chloride. However, the leaching rains received in the Wet Tropics region means it can be a limitation in these soils, especially through the wet season.

There is also a common misconception that chloride (Cl), is the same as chlorine (Cl₂). These compounds, while being the same element, are dramatically different, particularly in terms of their affect on soil biology.

A saltwater pool is a good example of this. The salt which is chloride does not affect the growth of algae in the pool until it has passed through the chlorinating electrode, which converts it to chlorine.

While the requirement is well documented in the banana industry, excess chloride can still be a concern, and there are upper and lower desirable limits for this element.

However, much folkway exists attributing damage to the use of small amounts of this compound. Growers of mangoes and avocados, in particular, have been told that any amount of chloride will damage crops.

Total Grower Services has



Shane FitzGerald, of Total Grower Services, inspects a Mareeba avocado crop produced using calcium chloride inputs.

used chloride in these crops for the past two seasons with dramatic improvements in calcium uptake and subsequent quality improvements.

Standard soil tests, however, will not display this relationship between calcium and chloride, as they do not include the soil solution extraction technique.

While chloride is not directly utilised by the plant, it is an essential element in terms of soil chemistry allowing the plant to access elements such as calcium.

It has been demonstrated that calcium is important for the plant's natural defence of diseases by strengthening the cell wall.

Therefore, when chloride levels in the soil are optimum, the level of available calcium and subsequently the plant's ability to resist disease, are increased.

Chloride, being an anion, is able to assist in increasing the availability of calcium by holding this cation away from the cation exchange and in the soil solution.

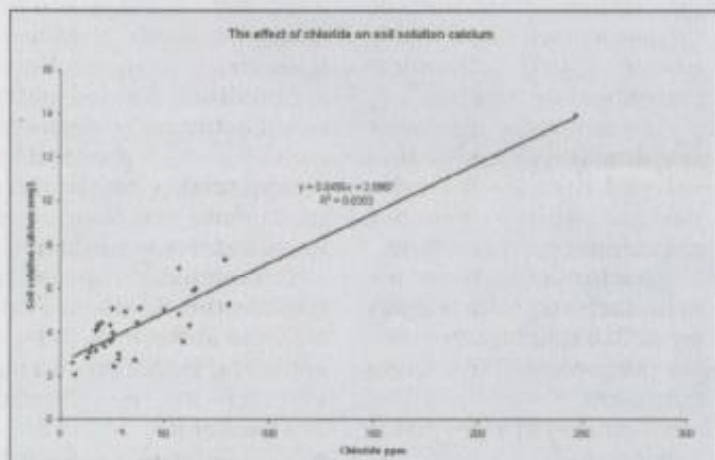
Without chloride, cations would remain on the cation exchange, but would be unavailable to the plant.

Chloride is most often applied as muriate of potash, which is the cheapest form of this element. In cases where a soil test shows an excess of potassium, chloride can be applied as calcium chloride.

In all cases, application requirement should be assessed by a soil test and programs should take into account weather conditions and soil types to tailor them to individual farms.

The updated BFA standards will allow only naturally mined muriate of potash as a chloride source.

The use of muriate of potash will be restricted to use within a program whereby soil tests demonstrate a need. These changes will take effect upon the official release of the BFA standard OS Version 7 early this year. Credit should go to the BFA for having the courage to stand behind science in the face of deeply-embedded opposition.



The relationship between chloride and calcium is statistically proven.