

## **RECLAIMING SOILS HIGH IN SODIUM-AN ALTERNATIVE APPROACH**

Traditionally all turf managers have used gypsum to successfully reclaim a high sodium (sodic) soil condition. Many of our soils have high amounts of sodium in them, and much of our irrigation water can be high in sodium. Both of these conditions often lead to a sodic soil condition and with water quality generally deteriorating this means that issues regarding sodium will generally become more commonplace.

A sodic soil is high in sodium. On a soils test, the value for exchangeable sodium percentage (ESP) represents the percent of the soils overall nutrient holding capacity, which is filled with sodium. If the value for ESP is 15% or greater, then the soil may be sodic.

When this happens, the soil tends to lose its ability to form aggregates with other soil particles. The soil is said to be dispersed and generally supports little or very poor turf growth.

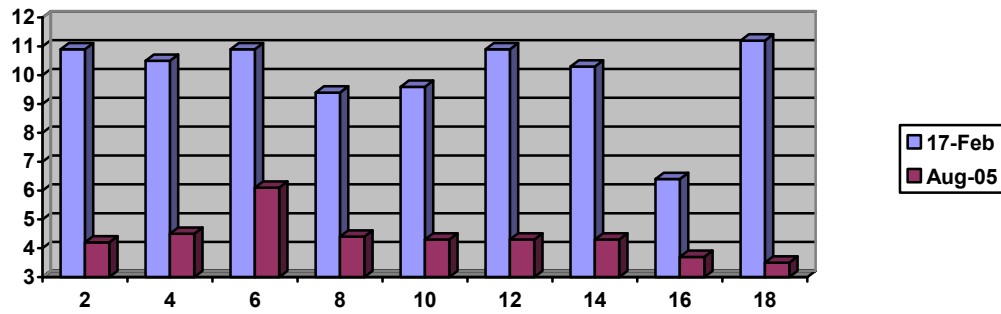
Applications of gypsum (calcium sulphate) act chemically to remove the sodium from the soil particles. This is a two step process. The first step takes about six months. The gypsum is only relatively soluble and is a slow release compound. It takes months of regular irrigation and rainfall for the gypsum to break down into separate pieces of calcium and sulphate alone.

After this happens, the calcium (supplied by the gypsum) trades places with the sodium that is attached to the soil particle.

The sodium then becomes attached to the sulphate (also supplied by the gypsum) and becomes sodium sulphate). This easily washes away below the roots with adequate water (leaching).

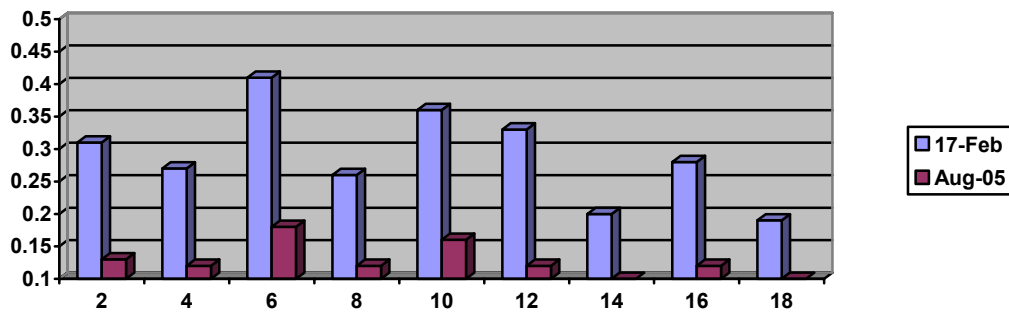
Gypsum is slow to become soluble and takes 4-6 months to be chemically active. Bearing this in mind we have instigated a number of trials using linear polyacrilamide (PAM) in conjunction with reduced rates of gypsum. The results are shown below for Strathfield Golf Club.

### Na as % CEC



### Greens

### Na as meq exch



### Greens

In this 6 month period actual sodium levels fell on average 56% from the levels recorded in February 2005. And this was achieved with half rates of gypsum.

**PAM is available as a liquid formulation or can now be coated on NPK blends.**

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