

# Thoughts on cotton soil testing

By David Bailey

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Most cotton growing locations are blessed with inheritantly fertile soils, abundantly suited to high yielding cotton.

For 30 years, the main consideration growers have needed to discuss and act on is "how many units of N will we give the crop this summer". My question is, "what has been happening to our soil phosphorus, potassium, zinc, organic carbon and sodium levels?"

The days of our false sense of security over adequate levels of the above elements are over.

East West Ag Lab has convincing evidence that the decline in available phosphorus and the insidious rise in harmful sodium are slowly, but steadily becoming vital factors in cotton growth potential on one hand and serious fall in production on the other.

A deal of trial work has been directed to zinc deficiency. Potassium has come up for speculation in regard to early senescence but more work in relation to actual lint yield must be investigated.

## Cation changes

We are fortunate to generally grow cotton on self mulching clays which show high levels of the beneficial cations — calcium, potassium and magnesium. And prior to intensive irrigation these fertile soils contained only minor levels of the harmful cation sodium.

Thirty years of cotton production has altered the balance of the cations — the main imbalance being the fall in the relative percentage of K and the rise in sodium. Irrigation and wet years, such as the spring of 1998, plus cotton's strong

appetite for potassium has seen this imbalance move more and more into the danger zone.

## Phosphorus tests

There is some concern about the so-called unreliability of the present phosphorus tests. For this reason, we are encouraging the Lactate Test for soils with pH readings (in CaCl<sub>2</sub>) of over 6.5. This season, we will also add a total phosphorus analysis to cotton testing on request. This means growers and agronomists will at least know how much phosphate is in the soil bank.