



## TECHNICAL NOTE

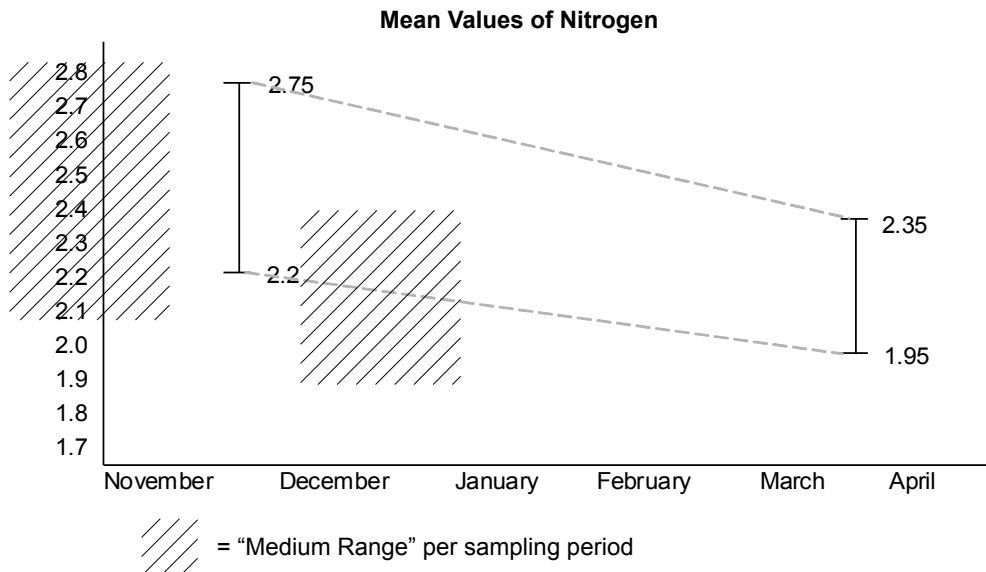
### APPLE LEAF ANALYSIS

Apple leaf tests conducted in November/December are useful as early diagnosis and correction of nutrition related problems will benefit the current seasons crop.

#### Seasonal changes in nutrient levels

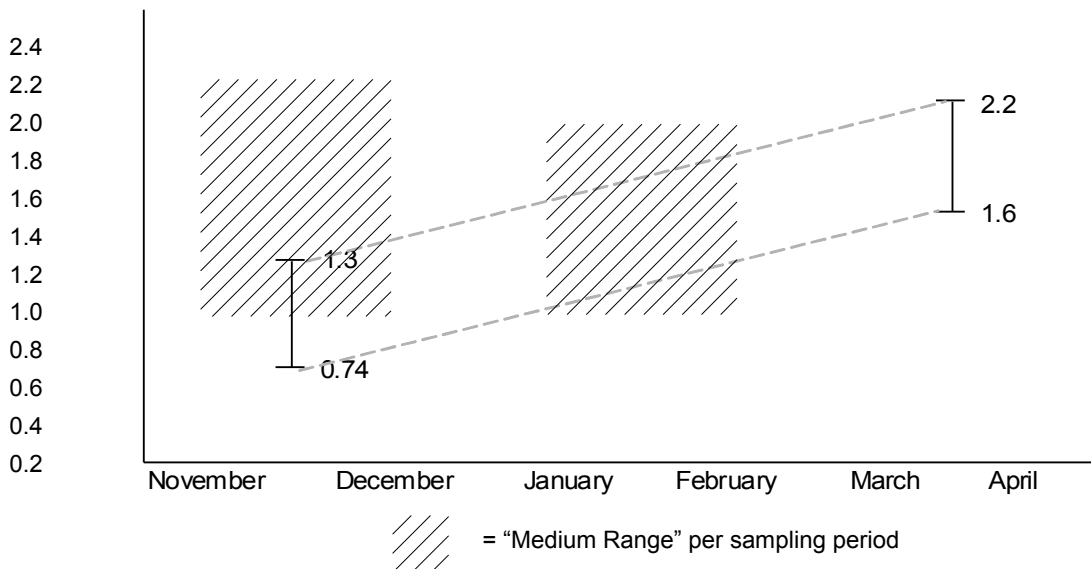
Interpretative guidelines for leaf tissue analyses usually assume that the sample leaves have been collected during January and February, as this is considered to be the optimum collection time. However, there can be considerable differences in the nutrient levels found in leaves at different times in the growing season, and between seasons.

The following graphs show the mean levels reported for nitrogen and calcium during the growing season. For early season leaf samples (November/December), nitrogen levels tend to be higher and calcium levels lower than in the normal sampling time of January/February. Accordingly, different leaf tests interpretation criteria have been developed for early season leaf testing of apples.



For most elements, early season values tend to be higher than those in mid-season (zinc levels in early leaf samples tend to be particularly high). Late-season values tend to be lower than 'normal'. Calcium samples are an exception to this tendency - its value usually rises.

### Mean Values of Calcium

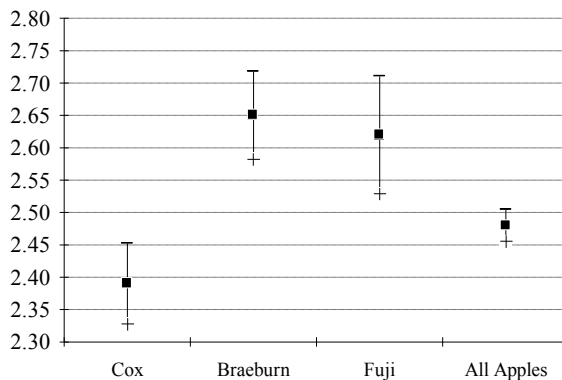


### Varietal differences?

It has been suggested that the 'normal' nutrient levels in apple leaves differ between particular varieties; and that varietal differences should be considered along with other factors such as tree age, management techniques, fertiliser history, water supply, and climatic conditions.

We have found clear differences in the mean values of leaves from different apple varieties processed at Hill Laboratories, for some nutrients. For example, the graph below shows that Braeburn and Fuji apples have tended to have higher nitrogen levels than coxes apples.

**January/February Sampling  
Mean Nitrogen Values, by variety**



### Conclusion

When apple leaf samples are taken outside of the January/February period, consultants and orchardists should be aware that nutrient levels in these leaves are likely to differ from 'normal' simply by virtue of the time of sampling. The potential for varietal differences should also be considered, prior to taking action to correct what might appear to be a nutrient imbalance in the trees sampled.