



PENETROMETER STUDY

BUTTERCUP SQUASH

Objectives

- **To verify Trial results from 1989/90 Season in different regions.**
- **To develop field testing method for maturity assessment.**
- **To establish any regional differences in fruit development.**

SUMMARY OF RESULTS

- Average Penetrometer readings of 8.5 indicated an acceptable level of fruit maturity in the regions sampled.
(This is confirmation of 1989/90 Trial work).
- There was a strong correlation between penetrometer readings and other indicators of fruit maturity
 - flesh colour
 - stem corking
 - dry matter (1989/90 Trials)
- There were no significant differences between cultivars tested.
- The rate of fruit development was greater in the North Island compared to Canterbury sites sampled.

The survey showed a difference of 10-12 days from flowering to harvest between Canterbury and the North Island.

- Stem corking is a useful indicator of fruit maturity but the amount of corking required is greater than 75% of the stem.
This is higher than the previous industry practice.

Observations in the study indicated some significant site variations in degree of stem corking especially on Peat type soils.

- External skin colour did not show any correlation with other maturity indices used.

Recommendations

- Use of the penetrometer can provide an objective assessment of fruit maturity in the field.
- The reliability of penetrometers as a post harvest (ie: Pack House) measurement of fruit maturity has not been established in this study.
- A set sample procedure is required.
 - minimum 25 fruit per paddock
 - average penetrometer reading to be 8.5
 - 5 measurements per fruit
 - random selection of fruit (at diagonal across block)
 - 2 samples for assessment commencing 35-40 days after full flowering
or when corking is apparent on the stems of most fruit
- Penetrometer readings should be recorded and used as a record to show that field maturity was reached prior to harvest.

This system could be adopted by the Squash Council as part of the Quality Assurance programme.