

#### Abstract:

Preliminary investigations indicated that dipping 'Bramley' apples in warm water prior to storage significantly reduced disease development during storage. Subsequent experiments confirmed that increasing the normal dipping temperature from 10 °C to 20 °C significantly increased the firmness of the apples. Since only quality apples are put into storage, levels of initial disease were quite low and remained low during the six months period in low oxygen stores. However, analysis of the combined diseases showed that the warmer temperatures significantly reduced disease (50% reduction) and enhanced fungicide efficacy (25% greater at 20 °C). Examination of the apple surfaces using scanning electron microscopy revealed that the warmer temperatures had softened the wax scales sufficiently for them to collapse onto each other, producing a contiguous surface which inhibited infection. Examination of the apple surfaces using a Fourier Transformed Infrared Spectrometer (FTIS) confirmed changes in the wax structure when the apples were dipped at higher temperatures. The results indicate that altering the apple surface using warm water has the potential for reducing fungicide treatments without compromising storage quality. This in turn has important implications for the potential reduction of pesticide residues in apples.