

#### Abstract:

'Fuji' apples have been exported from Tasmania to Japan, subject to methyl bromide fumigation, since 1999. In the 2000 and 2001 season, with increased throughput of fruit, the skin of the fruit was damaged by fumigation leading to major restrictions in fruit marketability. The initial aim of this project was to identify any steps within the supply chain that may be the cause of this damage. From this study an operations manual was developed and implemented by industry during the 2002 season. Trials were also conducted, in conjunction with the commercial exporters, to confirm the effect of various operations on fumigation damage. It was found that for the 2002 export season no major skin damage similar to that experienced in the earlier seasons occurred. This indicates that the new operation procedures were successful. Despite this a fumigation-induced browning of the vascular bundles, not seen in the preceding experiments or shipments, was observed causing marketing problems. From the trial data strategies to minimise the risk of reappearance of this internal problem in future exports were identified. It was found that the problem was associated with both the harvesting of more mature fruit and fruit waxing. Hence, the level of honey core in the fruit should be monitored and lines with greater than 10 percent of fruit with honey core should not be fumigated. Further fruit waxing should be avoided especially on lines with honey core. It was also found that the shipping containers were not maintaining 0 °C and methods of improving this should be explored. Finally, it was found that the level of methyl bromide used was slightly higher than required and this should be reduced to the target level.