Abstract

Victorian stone fruit are facing increased competition in export markets from countries like Chile, Argentina, China and South Africa. As a result, a new initiative funded by Naturally Victorian is developing protocols to optimise the proportion of stone-fruit that meets precise export specifications. This will differentiate Victorian stone fruit from other world producers providing a market advantage. As part of the Premium Fruit project PIRVic Scientists at DPI Knoxfield and Tatura, in collaboration with industry, are trialling wireless technologies to capture stone fruit temperatures from harvest right through the cool chain. This will enable real time monitoring of the storage environment and the data captured will eventually be used to model and predict product quality in the market. The wireless sensor network (WSN) being tested has been designed by RSW Enterprises—patents pending. A network of up to 50 wireless temperature sensors are positioned within approximately 50 m of the Wi-fi Comms Gateway (base station) during cool storage or transport. Temperature data is then transferred in real time to the Wi-fi access point (wireless receiver) that can then be viewed through the appropriate software or up loaded via the internet to any networked computer for others to view. The two main benefits of this technology are that it is "wireless" (i.e., no wiring or cables are required) and "instant" (i.e. provides real time data), unlike standard data loggers where temperatures can only be viewed after the event In some cases this may be too late to avoid significant quality loss if the cool chain has not been maintained Preliminary trials are underway with both developers of the software/hardware and stone-fruit growers/exporters to test the systems under commercial conditions. Initial tests have shown that the networks function and that real time data can be captured and processed. Predictive models for rot development and quality loss are being evaluated. When the best potential models are identified, data captured by the sensor networks will be used to verify and validate these models.