

#### Abstract:

Postharvest care is critical for the asparagus industry: the product is very perishable and customers have high expectations of this gourmet vegetable. Application of standard postharvest technology can be assisted by employing a model of quality loss related to time-temperature exposure after harvest. This relationship is very close and can be used to plan and manage cool chain handling systems, enabling estimation of residual shelf-life. Controlled atmosphere technology can assist in retention of quality where temperature control is not available. We observed a significant extension of postharvest life at higher than optimum temperature in a wide range of atmosphere conditions.

Asparagus is susceptible to the physiological disorder, tiprot. Tiprot varies somewhat with genotype, but is most strongly related to height growth rate of the spears. This is reflected in more development of tiprot in asparagus harvested in warm conditions, and in spears harvested when taller. Collapse of floral buds occurs early in tiprot development followed by collapse of vegetative buds and stem tissue, with subsequent bacterial infection. The harvest event triggers a sequence of biochemical responses in asparagus tissue. Gene expression has been linked to these changes and we have identified a number of genes with increased expression. The promoter from one of these upregulated genes has potential as a postharvest promoter, driving strong expression in harvested vegetative tissue.