

#### Abstract:

Optimal controlled and modified atmospheres (CA and MA) for fresh produce vary according to the temperature and duration of exposure. Produce in MA packaging (MAP) is typically handled for different times and at different temperatures during transportation versus retail display with the retail display temperature usually higher than during shipping. MAP that has been optimized for transportation conditions is likely to result in anaerobic conditions at higher retail display temperatures (Beaudry et al., 1992; Talasila et al., 1995); while MAP optimized for retail conditions has little effect at lower transportation temperatures. Thus, commercial MAP is usually developed for an intermediate temperature and is optimal for neither transportation nor retail display. It would be desirable, especially for produce transported over extended distances, as in marine transport, to maintain optimal atmosphere conditions throughout the postharvest handling chain. A procedure is described for designing a combination CA/MAP system to achieve this objective. The procedure involves first designing the MAP for a particular commodity that will produce an optimal atmosphere for retail display conditions, then selecting the optimal CA, which will interact with the MAP to produce a desired atmosphere within the packages during transportation. Putting this concept into practice requires knowledge of optimal atmosphere conditions for non-optimum temperatures and different handling times, information that is generally lacking for most commodities. An example is given for fresh-cut kale (*Brassica oleracea* var. *acephala* DC.).