

### Abstract:

The characteristics and the quality of vegetable crops during storage are influenced by environmental conditions and production technology. Some pre-harvest factors are closely related while others act independently. To provide high quality product throughout the year, it is required to start from high quality material and to optimize the different postharvest stages. Modified atmospheres depend on the properties of the packaging material and on the respiration activity. This last one is affected by intrinsic factors, such as size, variety and maturation stage, and extrinsic factors, such as temperature, processing conditions, relative humidity and fresh-cut vegetable volume. The objective of this study was to evaluate the influence of preharvest factors on the quality of fresh cut lettuce. Three experiments were conducted with different maturity stages (harvest time and leaf expansion grade) and lettuce types. Measurements were made of weight loss, ascorbic acid and chlorogenic acid concentrations, colour changes,  $O_2$ ,  $CO_2$  and ethylene production in the package atmosphere, general overall visual quality and organoleptic quality. Preliminary results showed that variation in enzymatic activities was related to the lettuce type and the permeability of the packaging material to  $O_2$  and  $CO_2$ . In general, a lower chlorogenic acid concentration was related to a better organoleptic quality depending on the film permeability. A higher postharvest quality on butterhead fresh cut lettuce was found with lettuce heads harvested at 45 days. Fresh cut lettuce with moderately expanded leaves showed the best general overall visual quality. Ascorbic acid concentration decreased during storage in all lettuce types. Optimization of all the steps of production, preparation and distribution of fresh cut vegetable and selection of the most suitable cultivar will yield products of extended shelf life with fresh-like quality.