

Abstract

Controlled atmosphere (CA) storage is a process in which certain fresh fruits, vegetables and cut flowers are stored under narrowly defined environmental conditions of temperature, oxygen and carbon dioxide concentrations at high humidity to maintain quality and extend their useful postharvest life. The primary benefits of CA storage are achieved by suppressing the synthesis and action of the ripening hormone ethylene. By far the largest commercial application of CA storage has been to delay ripening of apples and pears. Mechanized handling with bulk bins and pallets and development of improved technologies to establish and maintain controlled levels of temperature, humidity, oxygen, carbon dioxide, and ethylene has resulted in great expansion of CA storage worldwide since the middle of the 20th century. CA storage researchers have defined appropriate temperature and gas atmospheres to delay ripening and to control physiological disorders which may terminate the useful life of the commodity by preserving appearance, flavor, nutritive value, or wholesomeness. My purpose is to provide a brief historical account of how CA storage of fruits and vegetables came to be and to describe some scientific and technological developments that contributed to its rapid expansion over the past fifty years.