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Effect of Preharvest Factors on Postharvest Quality: Introduction to the Colloquium

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Postharvest quality of horticultural crops is closely influenced by various preharvest factors, including environment and cultural practices. Seasonal growing temperatures, light conditions, amount of rainfall and irrigation, mineral nutrition status and fertilization, pest management, and maturity at the time of harvest can directly or indirectly affect postharvest quality, storage life, and susceptibility of crops to disorders and diseases. The contributors to this colloquium evaluated the impact of a wide spectrum of preharvest factors on the ultimate quality of horticultural products at the time of consumption. The information presented here is useful to postharvest physiologists and pathologists as well as to those involved in production research.

In many horticultural crops, quality does not improve after harvest, therefore, the best quality of the crop is at harvest. Most vegetables, which do not undergo a ripening process during their postharvest life, fall into this category. Thus, field management practices, such as pest control, soil fertility, and water management play a very important role in determining quality attributes such as size, color, flavor, texture, and nutritional values for these vegetables. The quality and longevity of flowering plants are mostly affected by cultural practices and genetic components. Regulating the use of fertilizers and selecting the right cultivars can increase the longevity and improve the quality of flow-

ering potted plants and cut flowers. The susceptibility of horticultural crops to disorders can also be attributed to preharvest conditions. For example, superficial scald is a serious physiological disorder in certain cultivars of apples (*Malus domestica* Borkh.), pears (*Pyrus communis* L.), and many other fruits. The occurrence of scald is closely associated with several preharvest factors, such as growing season temperatures, light conditions, and the amount of rainfall. Stone fruits are susceptible to internal browning and mealiness during postharvest storage. Preharvest factors including fruit canopy position, irrigation, and fertilization can affect the severity of these disorders. In small fruits and berry crops, preharvest environmental factors and mineral nutrition play important roles in determining postharvest quality attributes, including firmness, acidity, and sweetness. Postharvest decay of berry crops is also affected by preharvest pathogen attack. Mineral elements, especially N and Ca, have a profound effect on firmness, ethylene production, respiration, storage life, ripening, and decay of diverse fruits and vegetables. These and other preharvest factors affecting ultimate quality of harvested horticultural crops are reviewed and discussed in the colloquium.

The colloquium is broad in scope and includes subject matter of interest to all horticulturists who are concerned with the quality of horticultural products. The information is useful to academia as well as to industry. A better knowledge of how preharvest factors affect postharvest quality will allow a deeper understanding of how to manipulate these factors to better maintain the quality of horticultural crops.

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