

**Title** Post-harvest disease: effects of the physiological age of bananas on their susceptibility to wound anthracnose caused by *Colletotrichum musae*

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### Abstract

Wound anthracnose caused by *Colletotrichum*, and early ripening are the main problems affecting the quality of export bananas from a lot of countries in the world. In the case of Guadeloupe in French West Indies, these problems generally concern bananas grown in lowland plantations during the rainy season. Three experiments were carried out to study the influence of the physiological age of bananas (calculated on the basis of mean daily temperature sums) on their susceptibility to anthracnose. Stressful growing conditions, especially soil flooding, slowed fruit growth but had no direct effect on fruit susceptibility to *C. e* or on the green life. However, fruit that had accumulated lower temperature sums were less susceptible to wound anthracnose. By varying the source-sink ratio, we show that bananas of the same grade but different physiological ages had markedly different susceptibility to *C. e*. Bananas with the same temperature sum accumulation but grown in different soil-climate conditions had different levels of susceptibility. Fruit grown in cooler, highland areas were less susceptible to *C. e* than fruit of the same physiological age from lowland plantations. Our results suggest that temperature sum accumulation rate is a critical factor affecting the susceptibility of bananas to the pathogen.