

Abstract:

Puncture injury leads to qualitative and quantitative losses of tomatoes when they pass through handling operations. Some cultivars are less susceptible to puncture injury, which is a desirable characteristic for tomato quality. It is therefore important that the puncture injury susceptibility of new tomato cultivars is known prior to commercialisation and large-scale production.

In this contribution, a methodology was developed to measure the puncture susceptibility of tomato cultivars. A pendulum impactor was designed to measure damaging impact energy threshold (DIET) of tomatoes. Two cultivars were tested: Tradiro (less susceptible) and Blitz (more susceptible). At the same level of impact energy the population proportion of damaged Blitz tomatoes was considerably higher compared to Tradiro tomatoes. This means that the variety Blitz has a lower DIET and is more susceptible to puncture injury than the Tradiro variety. The level of this damaging energy was then compared to the level of impact, measured by an instrumented sphere, during harvest and grading.