The loss of water through transpiration causes a temperature gradient at the surface of horticultural products. This temperature gradient depends on the type and state of fruit (size, shape, skin, maturity, etc.), the temperature and humidity of the surrounding air, and on the air flow around and against the product. Since the transpiration of a fruit and its metabolism is related to the degree of maturity, the surface temperature of fruits could serve as an indicator for the ripeness. Products with defects or mechanical damage should have variable surface temperature, or plots with reduced temperatures. Defective fruit skins can such a way be detected by this localised temperature decrease. The aim of the present project is to evaluate the benefits and limits of thermal imaging as a method for the determination of fruit quality parameters.

Materials and Methods

Results

Conclusions

Thermal images have been taken using a commercial infrared camera with a temperature resolution of 0.1 K. The measured temperature distribution can serve as a source to characterise spots of transpiration at the surface of selected fruits, to determine transpiration differences between varieties, to evaluate the effects of processing on transpiration losses or to screen fruits for defective skins. Further research is needed concerning type of product and its emissivity, quality parameter to be evaluated, ambient conditions, and resulting temperature distribution.