



## Ripening Plums using the temperature sum

Plums are often grown far from the places where they are consumed. They can, for instance, be harvested unripe in a South African orchard and transported overseas for two to three weeks in a refrigerated container. Upon arrival in Europe, they are ripened to stimulate softening and decrease acidity. Plums have a short harvesting window of four weeks at most, which makes export and continuity in the production period a serious challenge. Moreover, not all plums are suitable for long transportation at low temperatures.

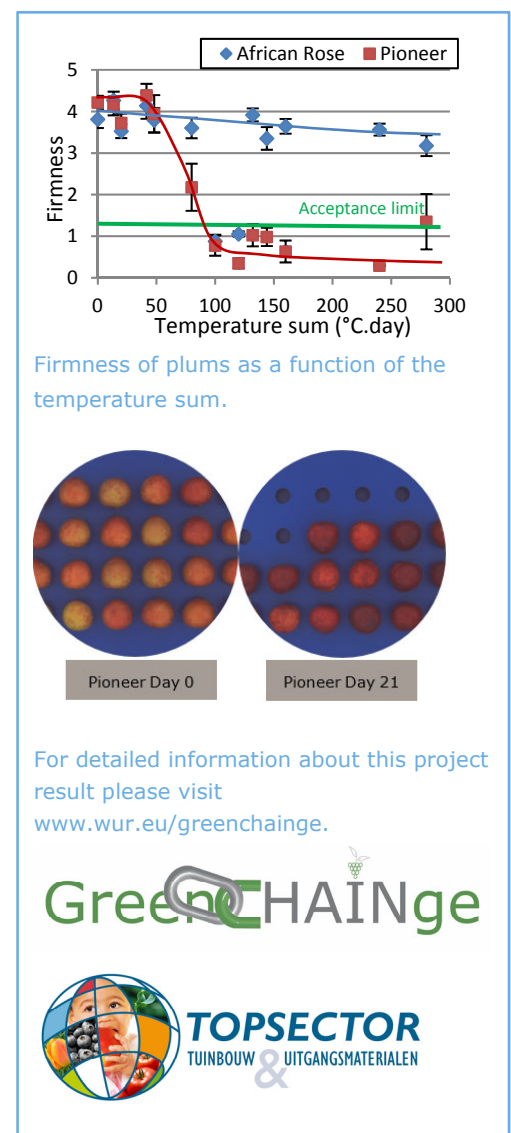
For all these reasons, the export of this fruit is known to be difficult and quality often fails to satisfy consumers. When unsuitable plum varieties are used or transportation conditions are sub-optimal, plums may not properly ripen at the destination and consumers end up disappointed with the quality.

### Plum softening dependent on temperature sum

Within the GreenCHAINge project, Wageningen University and Research investigated the behaviour of four plum varieties during ripening and their shelf life. Two of the four varieties (Sungold and Pioneer) were found to ripen well after transport. A clear relationship was observed between the amount of energy applied in the form of the temperature sum during the ripening treatment and the loss of firmness. This means that any combination of temperature and time that results in approximately 100 degree-days will yield softened (edible) plums for these varieties (see figure). This knowledge can be used to optimise the ripening protocols for plums.

### Chilling challenges

This behaviour was not observed for every type of plum, however. Two of the varieties examined (African Rose and Southern Belle) did not soften nor reach acceptable quality during ripening. The reasons for this are unclear. The chilling temperatures applied during transport or harvesting at too early a stage may be involved in texture issues (failure to soften or development of a mealy texture) as well as problems associated with taste development such as suboptimal sugar/acidity ratio. Special attention should be given to sensitivity to chilling and maturity index at harvest to optimise the export of these plum varieties.



### Information

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