

## EXPECTATIONS OF THE EUROPEAN MARKET REGARDING THE QUALITY OF AVOCADOS AND HOW TO MEET THESE EXPECTATIONS

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### **Market requirements**

The importer and distributor of avocados in Europe insists on rock-hard avocados without any symptoms of chilling injury, absolute minimum external defects and of a sound internal condition. The retail market and consumer, however, want avocados that will ripen normally within a specified period without external and internal quality defects.

### **Product characteristics**

Avocados must be picked at the absolute correct stage of physiological maturity. (In South Africa this is based on moisture content, which is directly proportional to the oil content. Min 9.8% oil = Max 80% Moisture (=20% dry weight)). In order to deliver hard fruit to the importer, the exporter is forced to pick more "immature". This fruit is much more susceptible to chilling injury than fruit picked more mature.

This phenomenon can be controlled by accurate and intensive management of the cold chain. First of all it is important to know the chilling injury potential of the fruit. This potential changes during the season. In practice this means that avocados must be shipped at a warmer temperature at the beginning of the season. The shipping temperature is then reduced as the season progresses.

It is also of utmost importance to insure:

- a continuous cold chain
- effective systems to market the fruit within 24 days (max 28 days) from picking

### **Product requirements**

In order to deliver the best quality avocados to Europe within 24 days from picking in South Africa, it is necessary to:

- **Plan the picking**, packing and cooling operations in such a way that deliveries to the port tie in with port operations and shipping schedules. Storage prior to shipment can be reduced by up to 7 days with careful planning resulting in fresher fruit in the market.
- **Pick the fruit** at the most optimum stage of maturity with as little variation as possible. (This also implies correct production techniques).
- **Apply the cold chain** as soon as possible after picking and ensure effective pre-cooling.
- **Ensure uniform temperatures** during the pre-cooling and cooling phases with minimum temperature increases during handling.
- **Maintain** the most optimum temperature and atmosphere regimes.

The pulp temperatures must be progressively reduced to remove increased heat of respiration as the fruit matures during the season and ripens during the voyage.

**Example:** 'Fuerte' avocados picked during week 8 of the season will respond best to an initial delivery air temperature (DAT) of 6C to be reduce in two steps of 0.5C each down to 5C during the voyage. The actual time of step down in DAT is based on constantly checking the return air temperature (RAT). The DAT is reduced by 0.5C as soon as the difference between the DAT and RAT is approaching 1.5C (1.0C when the market quality reports indicated softening on arrival.)

Controlled atmosphere (CA) can very effectively suppress respiration and therefore also the respiration heat generated by the fruit. CA, therefore, allows for slightly warmer (0.5C to 1.0C) shipping temperatures especially during the beginning of the season. This is also the time when the fruit is most susceptible to chilling injury. For this reason it is recommended that avocados picked during the first 4 weeks of the season per production (climatic) area are shipped under CA. CA still has a beneficial effect on arrival quality of fruit picked after week 5 but careful and accurate temperature management with RA shipping can ensure hard fruit on arrival without chilling injury.

For further detail, please contact the author.