Module 27
Packing Material and Specifications
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Reference
For more information on packing material specifications, please consult the CRI Production Guidelines, volume IV.

Packing Material Guidelines

There is a wide range of export cartons and other packaging material that is used when citrus is exported.

The minimum specifications for cartons and pallets are set out in the Packaging Material Guidelines document that is published by the CRI.

Ensuring that the cartons and pallets used in your packhouse meet these minimum specifications helps to make sure that your fruit reaches its intended market safely and in a good condition. Using only reputable and experienced packing material manufacturers, helps in meeting the standards set out in the guidelines.

Packhouse managers must also take into account any specifications for packing material that the exporter might include in their packing instructions. Generally, sticking to the guidelines given by the CRI should ensure compliance with market requirements and specifications. To begin with we look at pallets.

Pallets

All citrus fruit is stacked on wooden pallets at the packhouse. The specifications of the pallets are of cardinal importance. Pallets are distributed all over the world. They are transported over long distances from the far northern parts of the country, from the packhouse to the harbour where fruit is refrigerated. It is very important that the pallets must be of good quality.
ISPM 15 Mark

All export pallets must carry the ISPM 15 mark. To obtain this certification, pallet manufacturers must follow strict guidelines regarding the construction and treatment of pallets. Pallets have to be strong and sturdy – remember that when a standard pallet is stacked with A15C cartons, it has to be able to carry a weight of almost one and a half tons.

Wood Used for Pallets

As an example of the sort of minimum specifications contained in the Packaging Material Guidelines, let’s look at the specifications for pallets.

Only SA Pine may be used for the base blocks and SA Pine or Saligna for the rest of the pallet. The wood must have a density of 400 kilogram per cubic meter at 12% moisture content. Wood with a moisture content of more than 20% must not be used for pallets. The number and size of the knots in the wood are also specified in the guidelines, because this can influence the strength of the wood. All the wood used must be treated according to ISPM 15 Guidelines for Regulating Wood Packaging Material.

Pallet Dimensions

A pallet must be exactly 1.21 meters long, 1.01 meters wide and 153 millimetres high. All nails have to be annular, which are ringed, or ring shank, type nails.

The positioning and the number of nails are clearly shown in the Packaging Material Guidelines document.

Pallet Inspections

Please remember that when pallets are inspected for use in exporting, they are checked in lots of 200, of which five are chosen randomly and scrutinised. It is therefore possible that pallets may slip through that are not up to standard. It remains the ultimate responsibility of the packhouse manager to ensure that their pallets are according to specifications and meet the standards, and that the pallets will not damage the cartons or fruit.
You can now see the importance of using and knowing the content of the Packaging Material Guidelines document, as it will enable you to implement quality control on packing material in your packhouse.

Next we look at the different types of cartons in which citrus is exported.

**Cartons**

Here are a few examples of cartons used in the citrus industry. This is the small 2.3kg carton used for soft citrus.

**Open-Top Display Cartons**

The three on top are examples of open-top display cartons of various sizes. All these cartons are assembled and glued together in the packhouse using a carton erecting machine.

In the supermarket, these cartons are displayed on shelves, and the consumer selects fruit from the carton, which is weighed and paid for accordingly. That is the main purpose of open-top display cartons.

**Telescopic Cartons**

The other cartons used in the industry are these full telescopic cartons. When I open and close the carton like this it illustrates what we mean by a full telescopic carton. Some markets are not willing to accept open-top display cartons. One example is grapefruit that is exported to Japan, which is mainly packed in telescopic cartons.

**Ventilation in Cartons**

We live in a changing environment. As new world markets open, new standards and requirements are set by buyers. An example is that some countries require fruit to undergo cold sterilisation.

When fruit is loaded in a container or on a conventional ship, cooling is vertical. Air flow through the pallets and cartons must be ‘cooling friendly’. Pre-cooling of fruit in harbour facilities occurs horizontally, so cartons must be
adapted horizontally as well to allow for cooling within the protocol periods.

When looking at the export of citrus, it is of utmost importance – and it also determines the eventual shelf-life of the fruit – that fruit is brought down to the required temperature as quickly as possible.

This carton is the current A15C carton, but when we look at cooling and the ability of the carton and the position of the ventilation holes, we can see the carton is not really ventilation friendly.

This is why we started at the packing workgroup with the development of what we call a new ‘super-vent’ carton.

We are able to get the fruit, inside the protocol period, right throughout the pallet, even inside where airflow can be difficult, we get the fruit cooled to the required temperature.

Mass Container

The last aspect looking at the spectrum of packing material is we have what we call the mass container. This is used for industrial grade citrus that is exported, fruit that is mainly used for juicing in the overseas market. To pack this fruit in individual cartons does not make economic sense.

On the inside, to lend additional stacking strength to the container, we have extremely strong paper cores in the four corners. Because of the extreme bulging of the fruit, with 500kg of fruit inside the container, we have plastic straps in the form of a cross. The flaps are tied with these plastic straps to the pallet. When the mass container is full, they are stacked two high.

When they are stacked, on the top that is open we place a pallet cap, similar to the one used when stacking open-top display cartons, to close the mass containers properly.
Packing Material Quality

When a new supplier approaches the packhouse, please make sure that their cartons comply with all the relevant specifications as shown in the Packaging Material Guidelines.

The supplier must be able to provide evidence of compliance with specifications. Remember the old rule: if it sounds too good to be true, it probably is. Do not compromise on carton quality.

The strength of the glue used at the carton erecting machine must also be tested regularly, because glue loses strength over a period and can cause cartons to fall apart.

All other packing material, such as pallet caps used with open-top display cartons and bulk bins, securing sheets, laminated corner pieces and the strapping used to secure cartons on a pallet, should be bought from a reputable supplier. Don’t try to save a few cents on cheap packing material, which will spoil the product and ultimately cost you lots of money.

In the next segment we look at specifications for wrapping paper.

Wrapping Paper

Normal wrapping paper, used mainly for the Middle East, is used for two reasons. The paper is treated with a thin layer of oil to make packing easier, because it prevents the papers from sticking to each other.

The main reason is if there is fruit decay, it will prevent the decay from spreading. The wrapping paper also helps to absorb moisture or condensation that may be on the fruit. This is why the Middle East requires fruit exported to them to be wrapped in this wrapping paper.

Fruit wrapping paper sizes vary depending on the size of the fruit that is being packed. For example, when packing count 36 oranges, the wrapper size is 325 by 300 millimetres and when packing count 162 lemons, it is 200 by 175 millimetres. The size and type of paper to be used are specified by the exporter. Most of the fruit wrappers used these days are printed with beautiful colours.
Fruit Labels

Small labels, called fruit labels, are stuck on the fruit, by various machines and methods at the packhouse. Certain information is printed on the fruit label, such as the fruit variety. It looks good, and is mainly used for fruit going to niche markets.

Conclusion

Staying within the specifications for packing material is another controllable factor in citrus exporting. Specifications and guidelines are put in place to help ensure that fruit makes it to market in a sound condition.

Trying to get away with a cheaper substitute of lower quality, can cost a lot of money in the long run, and is a risk that is not worth taking.

active learning

Watch the DVD clips, read through the learning material and do workplace research to gather the knowledge and information to complete the assignments below.

Activity 27.1 – Mind Map

Do research about the Citrus Cold Chain Forum. Draw a mind map that includes the following information:

- When was the CCCF established?
- What brought about the establishment of the CCCF?
- What are the main objectives and activities of the forum?
- Which organisation drives the forum, and which organisations are represented on it?

Activity 27.2 – Research Report

Gather information about the packing material specifications for the three types of cartons that are used mostly in your packhouse. Record the dimensions for these cartons in a table, along with requirements for the cardboard that should be used in the construction of each carton type.

Shortly explain the meaning of the terms ‘calliper’, ‘corrugation’, ‘liners’, ‘fluting’ and ‘mass load at failure’.
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