Module 42
Cold Store Requirements

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Introduction

In the previous module we looked at the pre-cooling requirements for export citrus. Before a cold store can be used as a pre-cooling or holding facility, it must be inspected and approved by the PPECB.

Cold Store Exterior

Surrounding Area

A PPECB inspection starts of by looking, when we get to the cold store, at the surrounding area. What does it look like? Is it very dusty? The entrance way to the cold store, how does it look?

We don't want bins of old fruit standing around, whereby you going to get all sorts of insects and fruit flies which are going to breed there.

Loading Platforms

Thereafter we are going to look at all the loading platforms, where the fruit are loaded onto trucks. Especially at those cold stores that don't have loading docks, as we have here, where the fruit gets loaded outside and in dusty conditions, which is not good for the fruit. You get this dust blowing on the fruit, especially in windy areas.

Cold Store Interior

Looking at this particular cold store, you can see that it is a neat cold store, and it is well laid out. They have spent a bit of money on it, and they have ensured that it is very neat and clean.

Insulation

If we have a look then at the construction – it is a well insulated cold store, as for every cold store it should have insulation.

The thickness and the type of insulation will depend on what the temperatures inside the cold store are going to be and what type of products will be stored in the cold store.

Cleanliness and Damage

We are going to look at is the cleanliness of the cold store. Generally the ideal place to look first, if there is going to be any dust, is all around the edges. It always tends to migrate around the edges off the cold store.

After that we are going to look at damaged edges and damaged insulation. We have a look at the side walls. How clean are they? Are they dusty? We are not talking about stains we are talking about actual dirt and dust on the walls.

Doors

And then we are going to look at things like the cold store doors. What condition are the cold store doors in? Are they warped? Are they damaged? The cold store seals, the rubbers, do they operate nice and neatly? You don't want people to have to open the cold store doors with a forklift for example, it must move easily.

Water

The next step is to look for water lying on the cold store floor. Some operators, because their humidity within the cold store tends to be a little bit on the low side, take water and spray it on the floors. This is something we don't want to see. The water migrates into the cartons and into the wooden pallets, causing growth of bacteria and can cause the cartons to collapse. We don't advice this. There are other ways to increase the humidity and we can advice people on those.

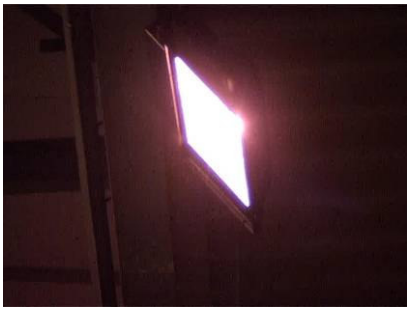
Air Curtains

You will notice that this particular cold store does not have any air curtains or plastic curtains, simply because it has an airlock which is also temperature operated, so it doesn't need plastic curtains. But in the event that the cold store does not have an airlock, we expect the door to have plastic curtains so that when the forklifts go in and out and people go in and out, the heat from outside does not enter.

Sensors

Then we look at the sensors and where the control sensors are placed. We also look at where the temperature recorder sensors should be. We say that the sensors must be in the delivery air, in other words, the air that is being delivered to the product itself to prevent top freezing. That will also prevent the air from going colder or below the set point. So we say for a chill store the sensors must always be in the delivery air. For a deep frozen store it is different, it can be anywhere in the room.

Lights



Lighting has to be of such strength that one is able to read markings on cartons. The forklift drivers must also be able to see where they are driving. It must also be bright enough to see whether there is any damage to cartons on the pallets. We also look at the light coverings. Very often you tend to find that the globes burst, depending on what type of globes is in there, but we can't take the chance that glass might end up in the product, so all lighting has to have a cover on it.

Conclusion

Citrus is subtropical fruit, and is by nature sensitive to changes in temperature. If a fruit is cooled to too low a temperature, it can be harmed by chilling injury. If it is not cooled down enough, the fruit will keep respiring and mature too quickly. The fruit will lose too much moisture, and its shelf-life will be a lot shorter.

It is critical to keep citrus fruit at the correct temperature according to the protocol, and to monitor that the required holding temperature is maintained throughout the cold chain.

All cold stores must comply with the regulatory requirements that may be placed upon them by food safety accreditation systems. For example, a HACCP system will require that a floor plan of the store is available and that records are continually kept of temperatures in the store. Procedures concerning corrective actions that need to be taken in case of temperature loss or gain must also be available and their effectiveness must be confirmed.

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 42.1 – Group Activity

Contact your local PPECB office and get the form used for cold store inspections. As a group, perform an inspection on a cold store in your area (remember that this does not have to be a cold store used for fruit of fresh products). Attach a copy of the completed form to your workbook.

Activity 42.2 – Worksheet

List the faults detected during your inspection in activity 42.1 and recommend corrective actions.

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Make keynotes on your experience below.

Activity 42.2 – Worksheet

List the faults detected during your inspection in activity 42.1 and recommend corrective actions.

Faults	*Corrective Actions*