

## Informative Circular nº 1

### 2008/2009 Citrus Season

### Endoxerosis in lemon

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The causes that produce **Endoxerosis in lemon** are not too defined. The little research that has been done in this regard, indicates several reasons that try to justify this physiological alteration. Main causes:



- Water Stress
- Irrigation water with high salt content
- Lack of the calcium and magnesium during the formation of the fruit

Due to one reason or another, the truth is that this anomaly that provokes alarm among exporters always appears around this time and leads to financial losses.

The damage occurs on the peel of the lemon, once the injury, which normally internal, comes to the surface. It can be described as a group of very dry areas of reddish-brown color, which as a result of the internal deterioration can become indented.



It is known that the physiological alteration appears on the fruit once it has been harvested, degreened and handled in the packinghouse for sale. In most cases, the emergence takes place at the destination several days after degreening.

The observance of the development process in recent years, lets us ensure, without any scientific basis for it, that **cold (below 12 ° C) has a direct impact on the manifestation of endoxerosis**. Several days in a chamber below the indicated temperature, can provoke the physiopathology with a very high virulence. Shipments in refrigerated trucks below that temperature to distant destinations, produce the same effect.

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Therefore, cold handling is the sole direct factor which we can influence in order to mitigate damage. We cannot dispense with degreening or handling, but we can dispense with subjecting lemons to low temperatures.

We can summarize our recommendations to lessen the effects of endoxerosis:

- Once lemons are harvested, **do not store in a refrigerated chamber.**
- If pre-cooling cannot be avoided **do it at the highest temperature** possible.
- Likewise, the refrigerated lorry must **carry the fruit at the highest possible temperature.**

**“When we talk about endoxerosis in lemons, cold is directly proportional to the appearance of damage”**

**“The colder the temperature, the more damage”**



DECCO Technical Service



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