

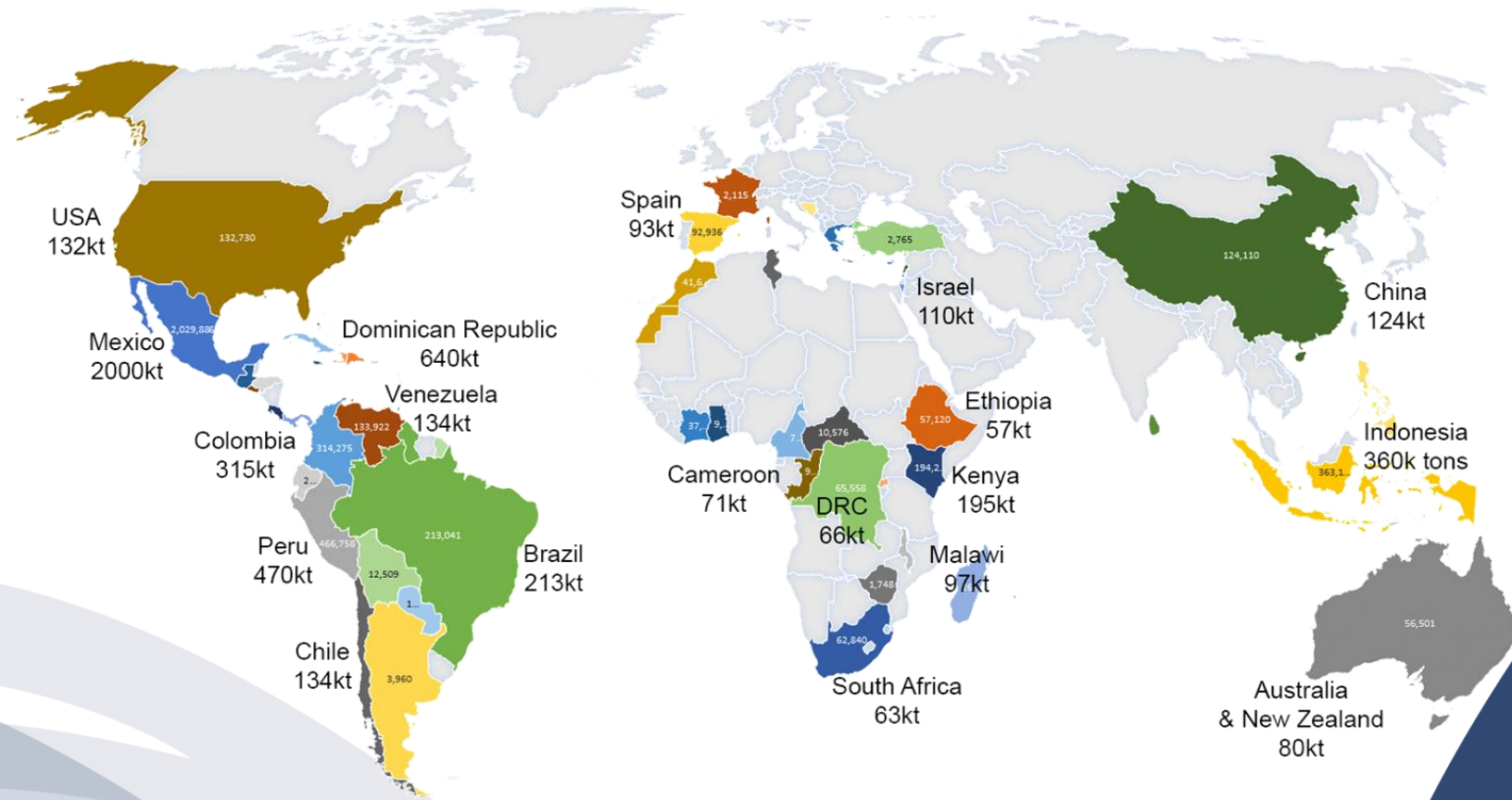


AVOCADO TRANSPORTATION FROM A MARINE INSURANCE PERSPECTIVE



Presented by Graham Pile

Avocado Producing Nations of the World



* 2017 Statistics - Food and Agriculture Organisation of the United Nations
<http://www.fao.org/faostat/en/#data/QC>

The Worldwide Avocado Market

Rank	Country/Region	2017 Tonnage Produced
1	Mexico	2,029,886
2	Dominican Republic	637,688
3	Peru	466,758
4	Indonesia	363,157
5	Colombia	314,275
6	Brazil	213,041
7	Kenya	194,279
8	Venezuela	133,922
9	Chile	133,636
10	United States	132,730
11	Guatemala	125,596
12	China	124,110
13	Israel	110,000
14	Haiti	97,520
15	Malawi	97,358
16	Spain	92,936
17	Cameroon	71,235
18	Democratic Republic of the Congo	65,558
19	South Africa	62,840
20	Ethiopia	57,120

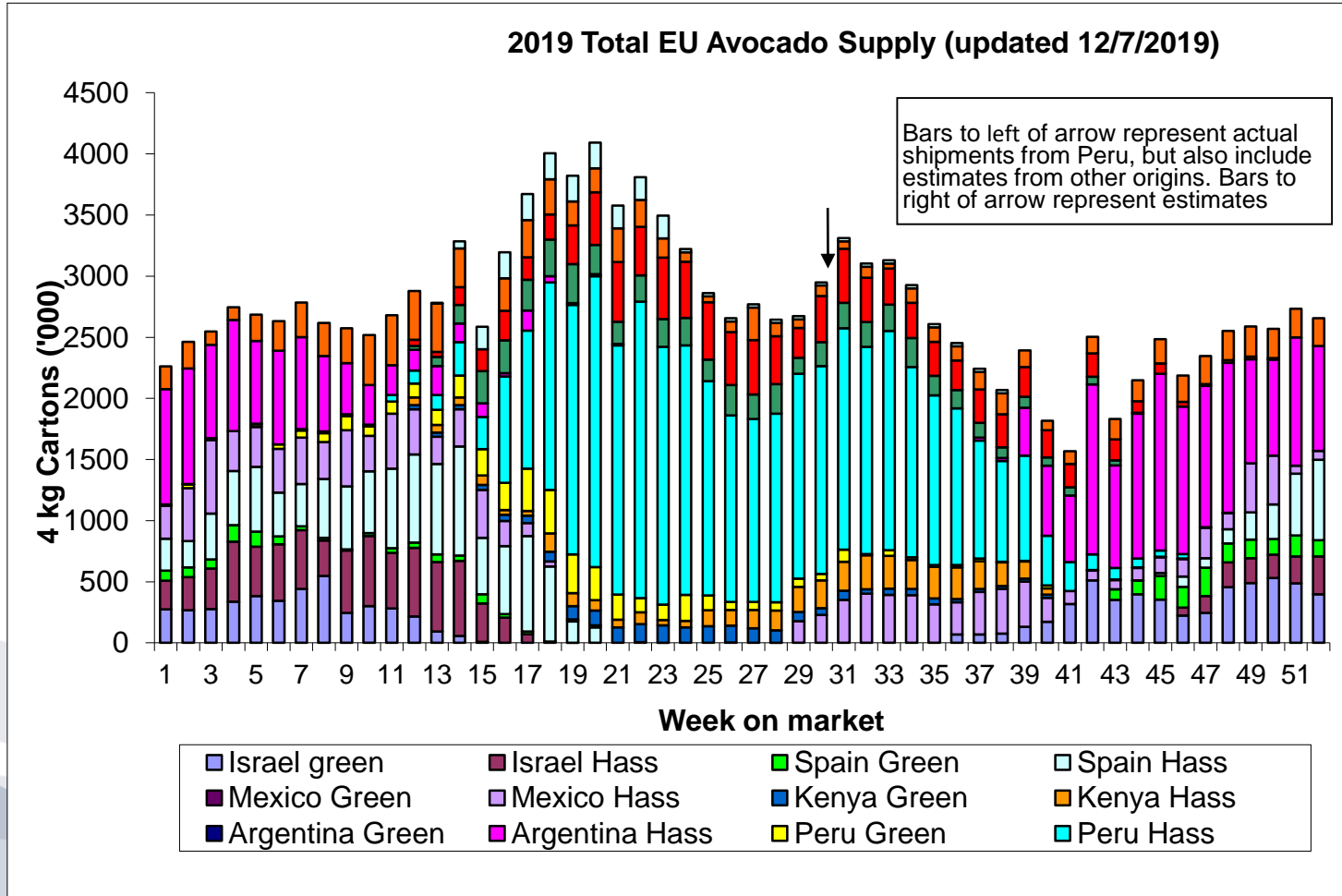
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The European Avocado Market

Forecast figures for avocados shipped to Europe for the 2019
Period as at **July 2019**

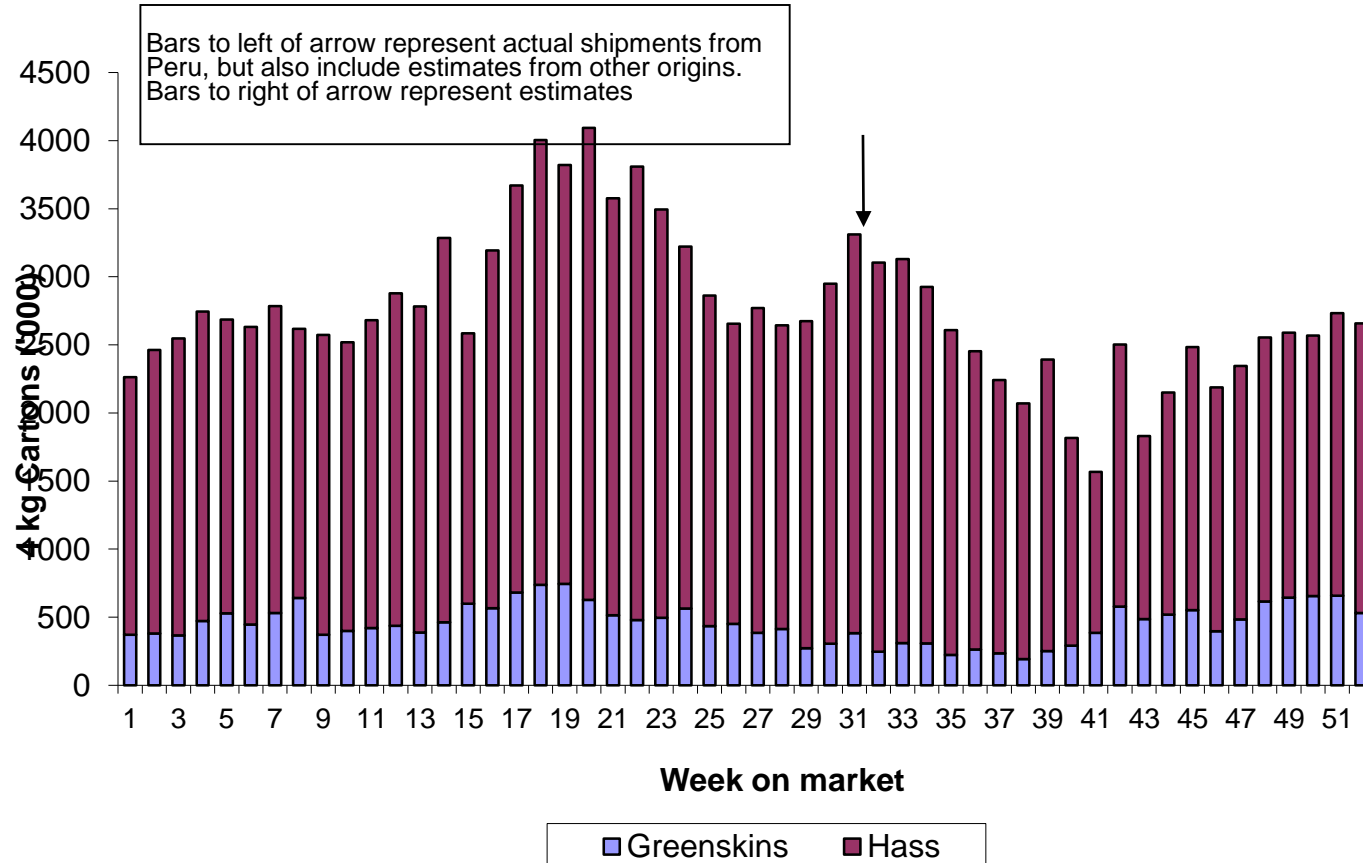
Country	Tons Green Skin	%	Tons Hass	%	Total Tons	% of Market
Peru	17 761	16%	204 728	40%	222 489	36%
South Africa	34 724	32%	55 349	11%	90 074	15%
Chile	0	0%	77 429	15%	77 429	12%
Spain	9 968	9%	46 378	9%	56 346	9%
Israel	32 205	29%	23 701	5%	55 906	9%
Kenya	15 051	14%	29 171	6%	44 221	7%
Mexico	0	0%	36 313	7%	36 313	6%
Colombia	0	0%	31 395	6%	31 395	5%
Brazil	0	0%	5 048	1%	5 048	1%
Argentina	140	0%	480	0%	620	0%
Total	109 849		509 992		619 841	

Estimated 2019 EU Avocado Demand



Estimated 2019 European Union Demand: Hass vs Greenskin

2019 Total EU Greenskin & Hass supply (updated 12/7/2019)



Market Pricing

- As a general rule of thumb, a 40ft reefer container carries some 20 tons of fruit (**21 pallets/4976 x 4kg cartons**).
- Market Prices as at July 2019 are as follows:

Market	Price / kg		Average Value / Container
South Africa	EUR1.16		EUR23,000
Europe	EUR3.75		EUR75,000
USA	Mexico / Texas:	EUR6.62	EUR132,400
	Philadelphia / NY:	EUR3.53	EUR 70,000
	California:	EUR5.91	EUR118,200

Avocado Varieties

Avocados may be classed into three races:

A

A **tropical race** with a **variable shape** and a low oil content

B

Semi-tropical a **longer shape** and a higher oil content; and

C

Sub-tropical with a **more round shape** and thicker skin with a moderate oil content.

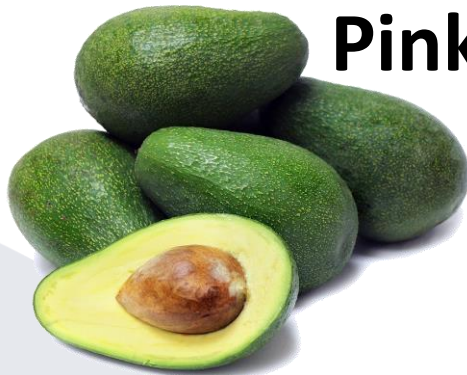
There are numerous Varieties-more common ones are:



Hass



Fuerte



Pinkerton



Ryan



Bacon



Gem

Key Quality Criteria

Harvesting and Sorting	At Ripening Stage
<ul style="list-style-type: none">• Size	<ul style="list-style-type: none">• Absence of disease (body rot and stem end rots),
<ul style="list-style-type: none">• Shape	<ul style="list-style-type: none">• Physiological disorders (flesh greying),
<ul style="list-style-type: none">• Colour	<ul style="list-style-type: none">• Physical damage (bruising).
<ul style="list-style-type: none">• Ripeness	<ul style="list-style-type: none">• If fruit is very ripe, the risk of spoilage is too great, which restricts their marketability.
<ul style="list-style-type: none">• Marks and Damages (Blemishes insect damage, spray residues and contaminants)	
<ul style="list-style-type: none">• Maturity (Oil and Dry Matter Content)	

General Storage Periods for Avocados

Designation	Temp	Relative Humidity	Max. storage duration
General Conditions	10°C	90-95%	14 - 28 days
Firm fruits	8 - 12°C		28 days
Ripe fruits	5 - 8°C		7 - 14 days

Controlled Storage Conditions

Transport Temperature	Relative Humidity	O ₂	CO ₂
3.3 - 4.4°C (From California)	85 - 90%	2 - 5%	3 - 10%
7.2 - 12.8°C (From the Tropics)			
5.5 - 8°C (Europe to South Africa)	95%	5%	3%



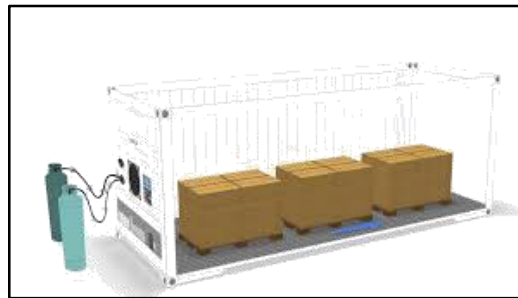
South African Shipment Time Frames

Action	No Days
Harvesting	2
Packhouse	2 – 3
Cross Haul and Stacks	3
Ocean Freight (16 to 19 days SA/ Europe)	18
Port Release	2
Road Transport to consignee	1
Total Transit Time	28
Consignee Storage	7 -14
Ripening	3
Shipment to retailer	1
Shelf Life (Ripe and Ready)	4
Total Duration – Harvest to Consumer	43 – 50



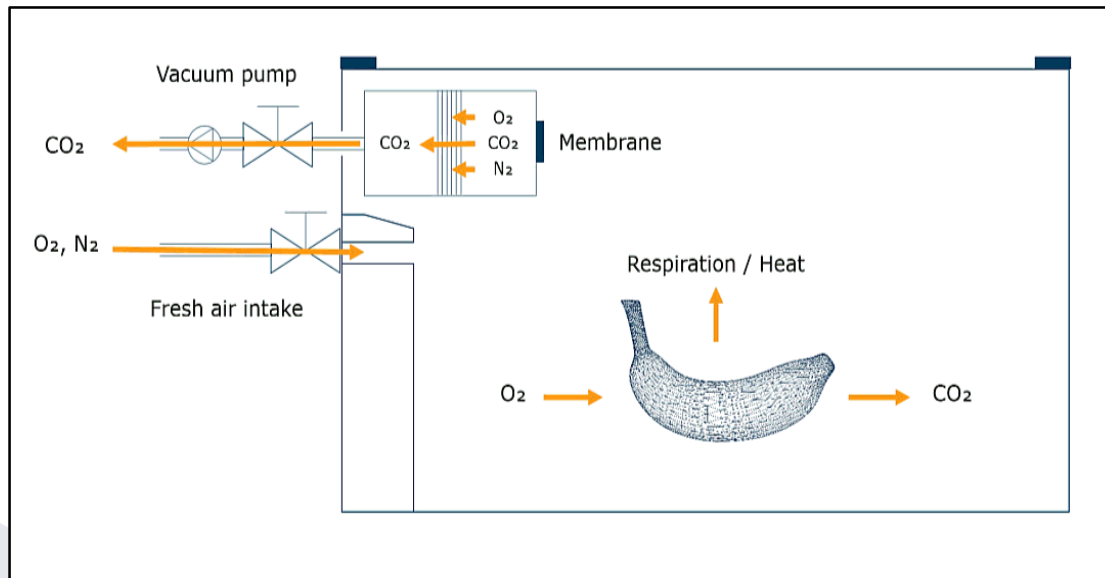
Controlled Atmosphere Containers

- **Membrane Technology** – Nitrogen separated from O₂ and CO₂ extraction system and injected back into the container / store
- **Gases stored in cylinders** – Nitrogen injected to reduce O₂ levels along with CO₂ enhancement
- **Molecular Sleeve Technology** – used to control CO₂ and ethylene levels at a molecular level using pressure and swing absorption technology

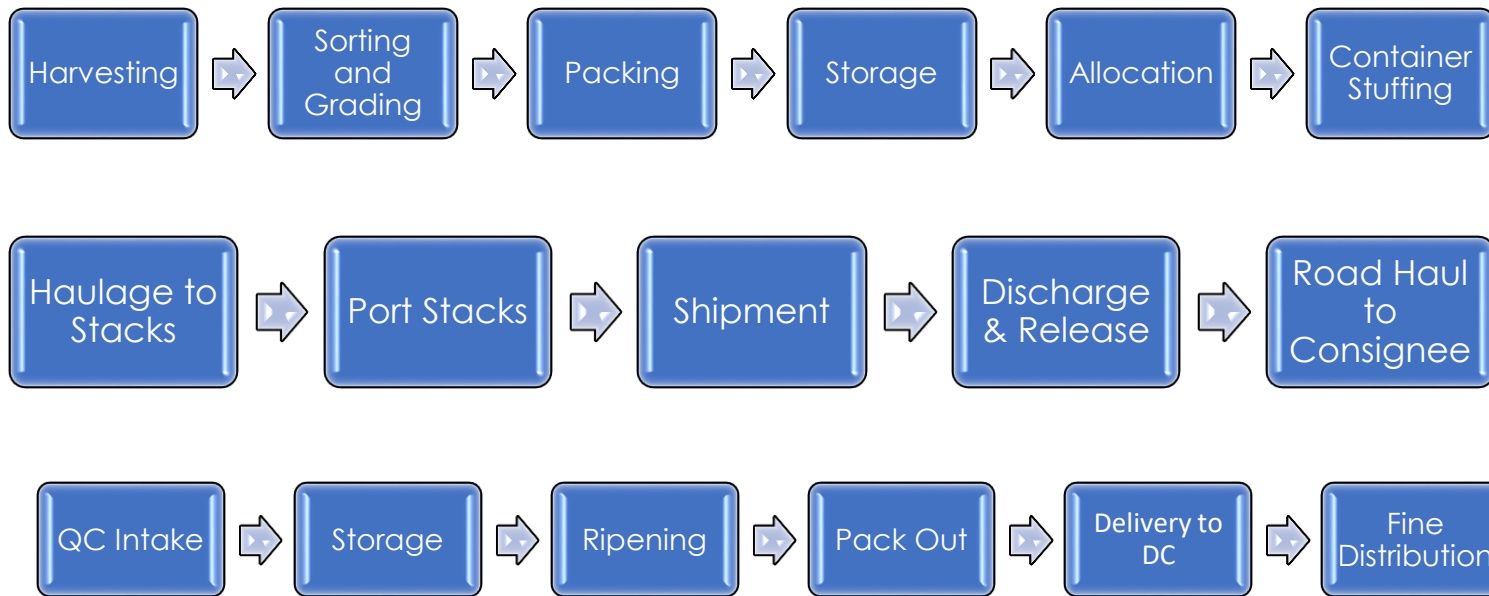


The Maersk Star Cool System

A multi-layered high-tech polymer film is used to control CO₂ removal and the fresh air intake regulates O₂ intake levels to regulate levels



The Shipment Process



Factors That Affect Transport

- **Harvesting**
 - Fruit Maturity – Oil content and dry matter
- **Cooling and Storage**
 - Immediate cooling after harvest
 - Storage at correct temps
- **Storage Disorders – Diseases**
- **O₂ and CO₂ Damage**
 - CO₂ levels > 10% skin browning and poor taste
 - <1% Oxygen – Flesh Browning and poor taste

COOLING



Factors That Affect Transport

Chilling Injury

- Early season fruit with **higher moisture content** is **more susceptible** to chilling injury
- Fuerte with **low oil content** (<14%) **more susceptible** than higher oil content (14-20%)

Variety	Storage Temperatures	Duration before Chilling Injury Manifestation	Comment
In General	4 to 7°C	3 to 4 weeks	Chilling injury displayed
Hass	0 to 5°C	6 weeks	Chilling injury displayed
Hass	7°C	47 days (7 weeks)	Increased severity of chilling injury noted

Factors That Affect Marketability

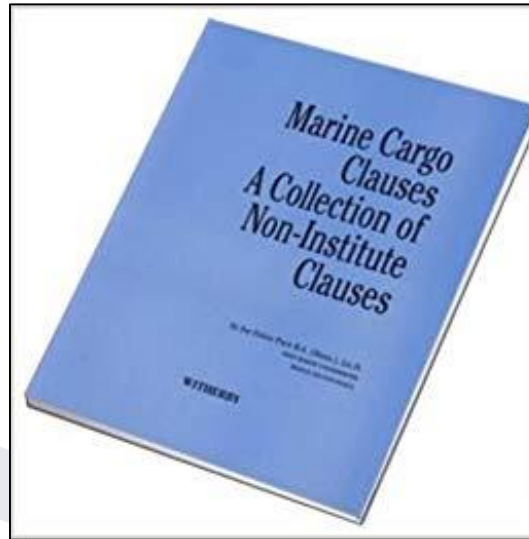


- Ripening
- Firmness
- Respiration Rate
- Water Loss
- Peel Colour



The Insurance Aspect ICC Frozen Food Clause

- **Covers**
 - **All Risks** except for temperature variation
 - Losses for periods > **24 hour breakdown**
- **Excludes**
 - Ordinary **loss in weight and volume**
 - Inherent vice
 - Delay

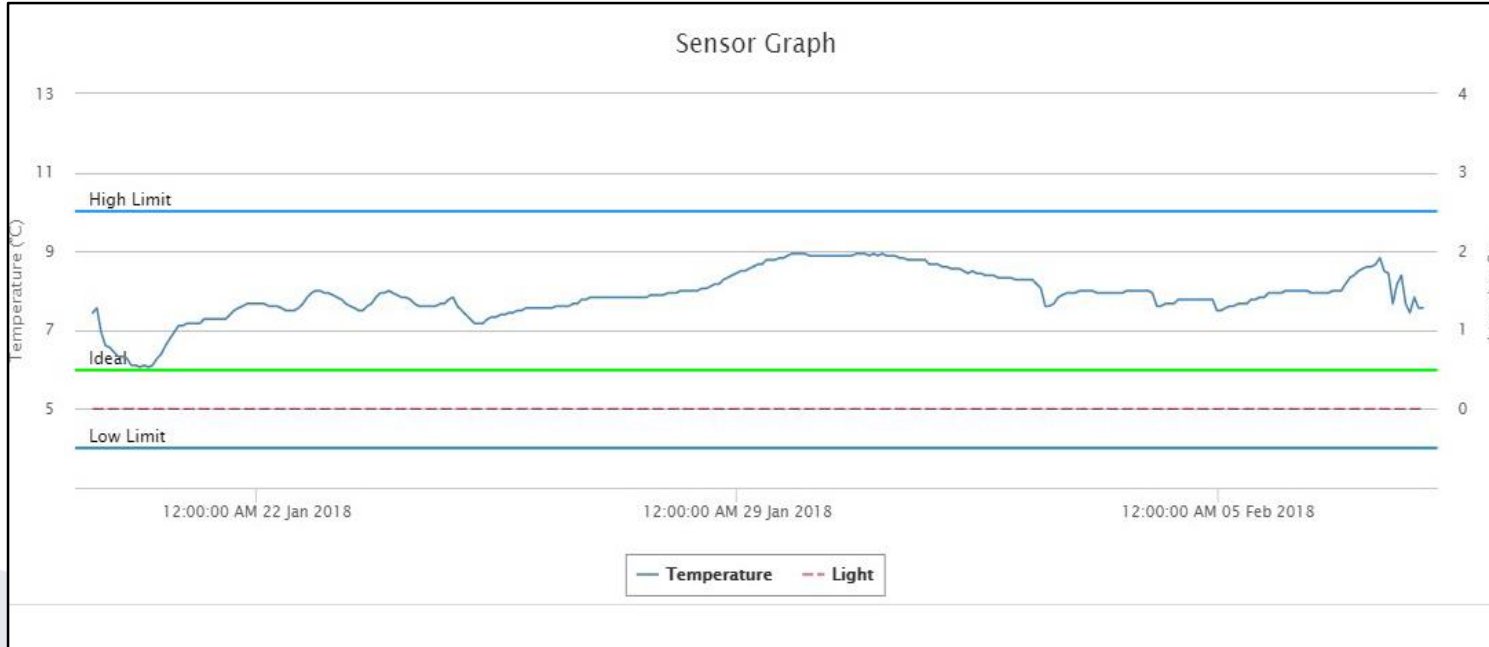


The Insurance Aspect ICC Frozen Food Extension Clause

- **Covers**
 - **loss of deterioration of or damage** to the subject matter
- **Exclusions**
 - loss damage or expense arising from **fault in preparation dressing cooling freezing wrapping or packing**
 - **Claims arising from loss of market**



Primary Cause of Loss: Temperature Variation



Other Causes of Loss: Delay

- Transhipments
- Port Congestion
- Wind Delays
- Heavy Weather
- Industrial Action
- Remember the shipment Time Frames!
 - 22 to 28 Days transit on average
 - 43 to 50 days to consumer



Claims Management

- Critical for the **buy in** of the consignees
- Consignees have discerning clients / market with **strict quality controls**
- Risk factors to consignees when supplying suspect product
 - Shelf Life
 - Quality
 - Returns



Underwriting Considerations: Fruit Origin

- **Fruit Origin**
 - **Fruit Maturity** – Oil levels and Dry Matter Content
 - **Harvesting** methodologies
 - Post Harvest **Cooling and Storage**



Underwriting Considerations: Shipment Duration and Routing

- **Shipment Duration and Routing**
 - **Shipments > 30 days** start becoming risky
 - CA Container Usage
 - Temperature and CA **Monitoring Protocols**
 - Ultimate **destination** of product (Woolworths, Sainsburys etc)



Underwriting Considerations: Loss Mitigation

- Important to **move quickly**
- Comprehensive **QC Reports**
- **Chilling does not stop the ripening process** once triggered
- Accelerated Ripening
- Sorting of Fruit
 - QC Reports
 - Wastage
- **Re-direction** to Markets



Thank You



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