



# Quality in Distant Markets

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# Introduction

- Quality problems in distant markets
- Outline New Zealand solution
- Monitoring fruit quality
- Feedback to improve quality



# Major limitations to quality in distant markets

- Transport time = fruit age
- Storage/shipping conditions
- Rots
  - green fruit rots
  - ripe rots



# Production chain

Orchard

Packhouse

Transportation

Handler

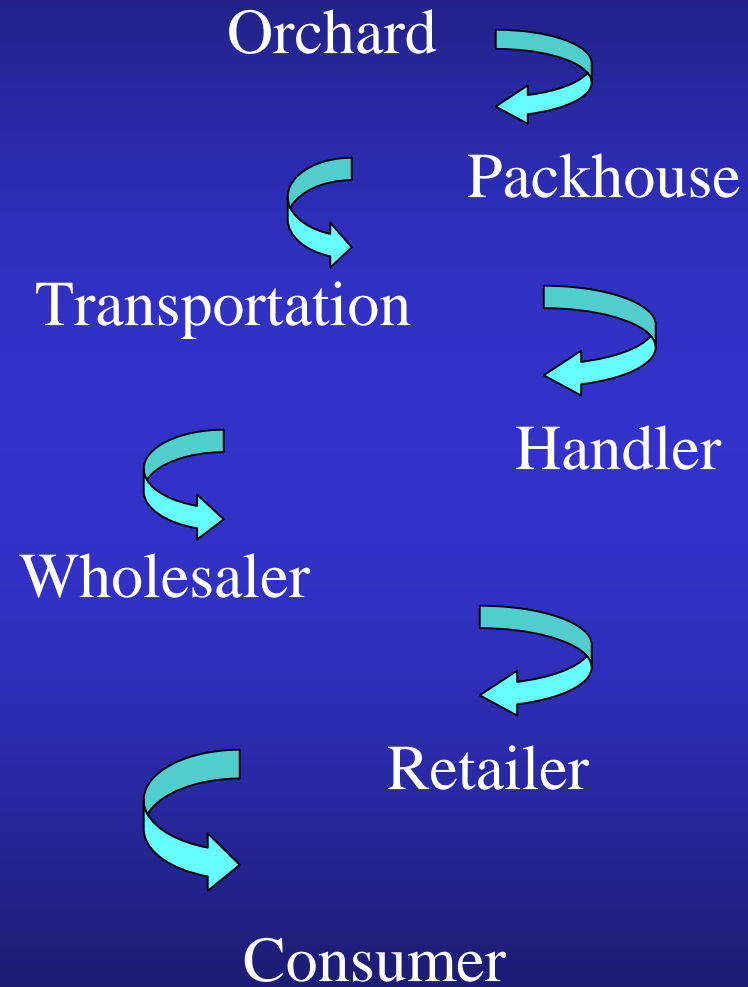
Wholesaler

Retailer

Consumer



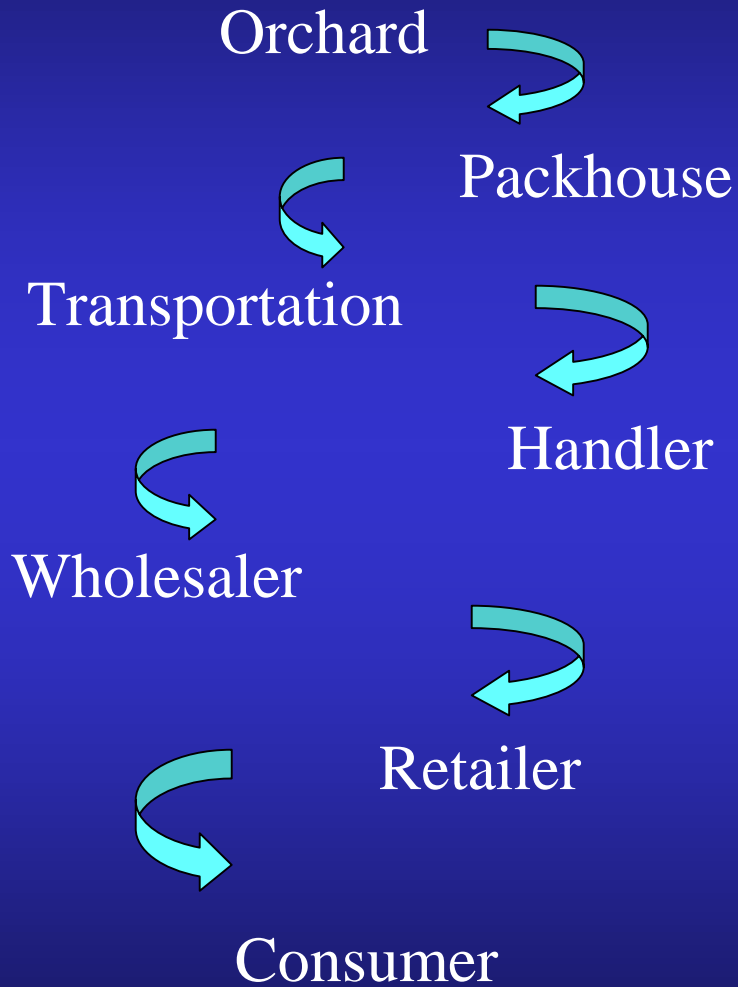
# Production chain





# Production chain

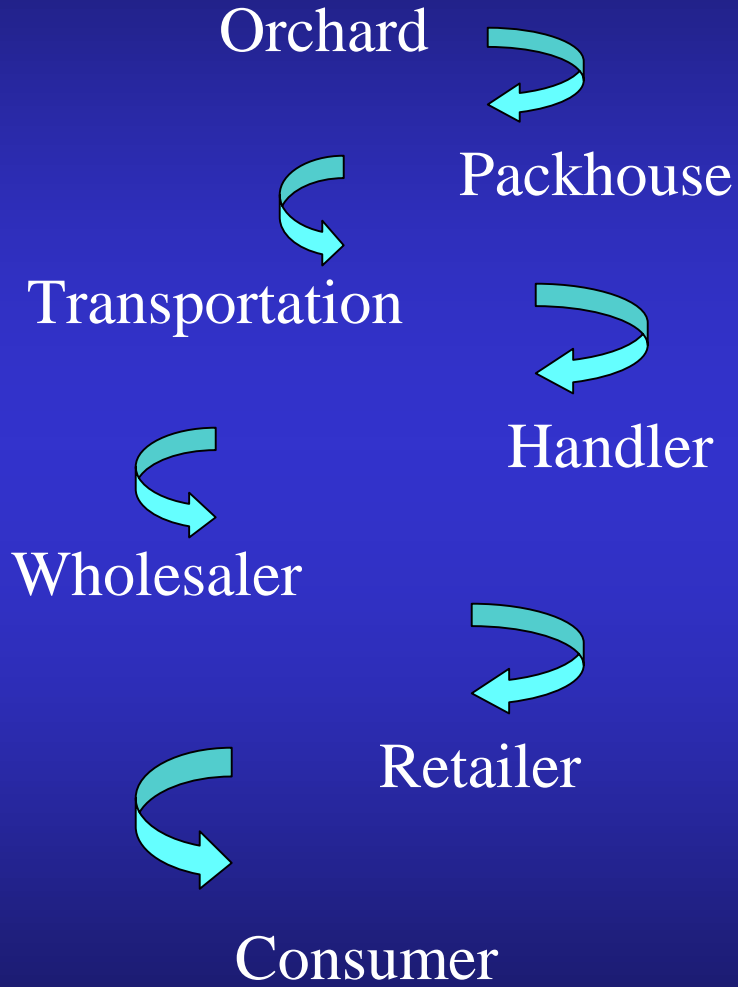
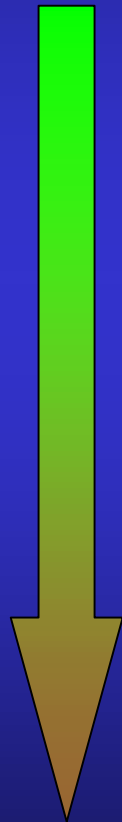
**QUALITY**





# Production chain

**QUALITY**

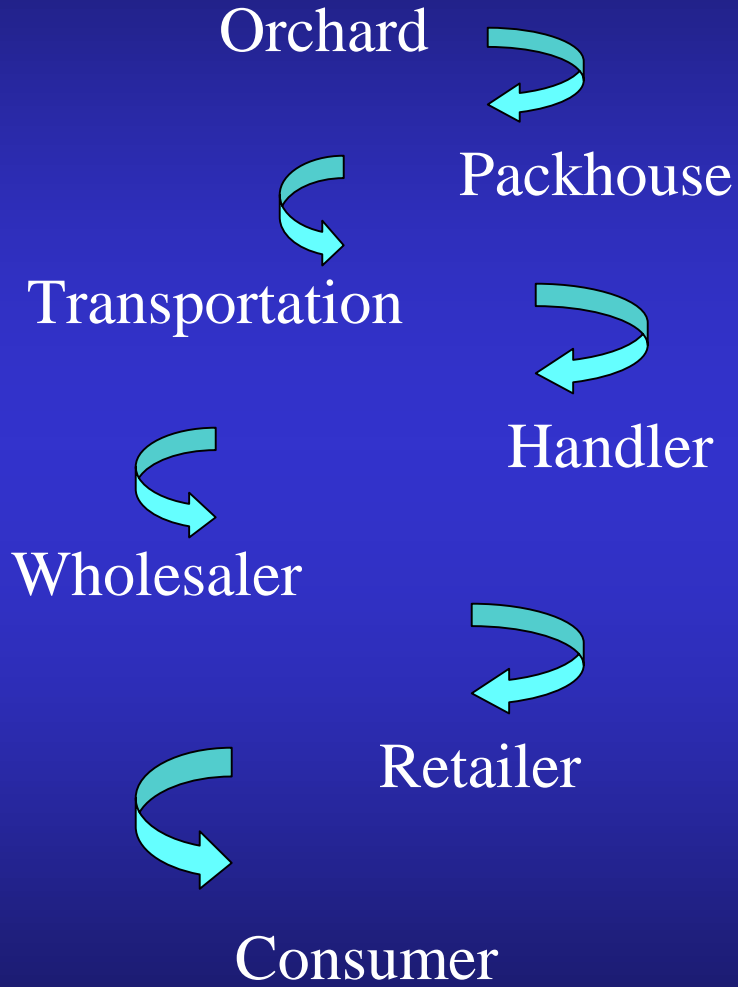
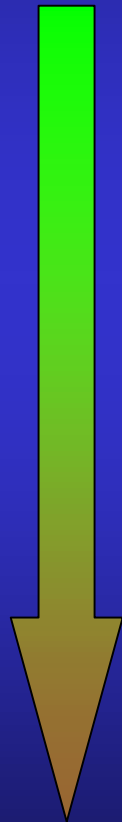




# Production chain

**QUALITY**

**TIME**



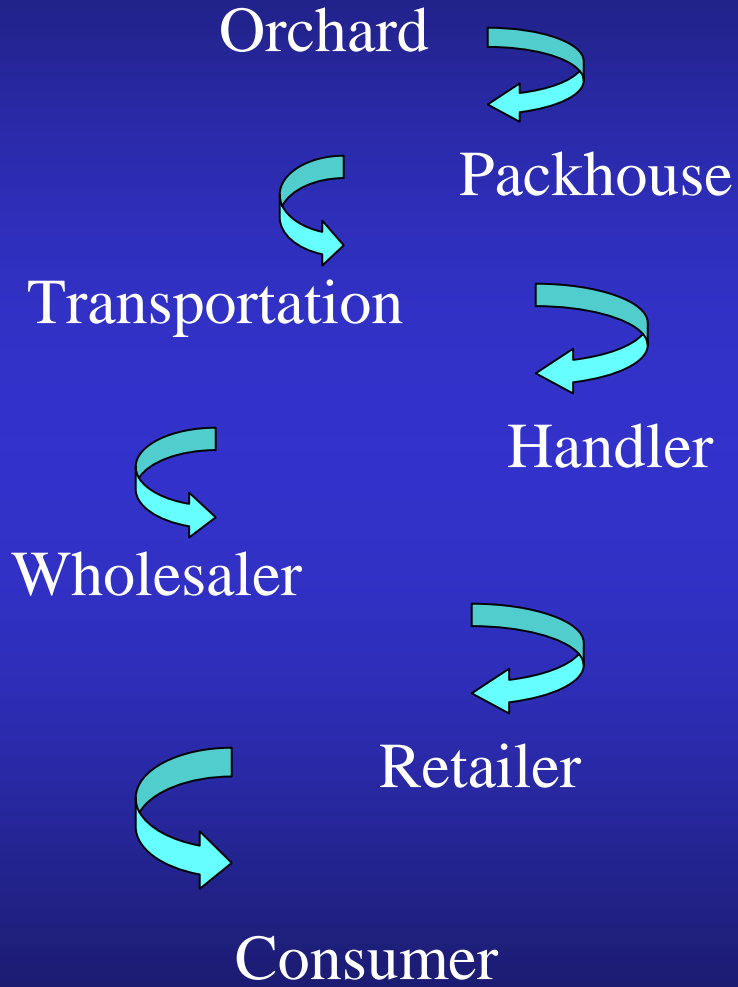
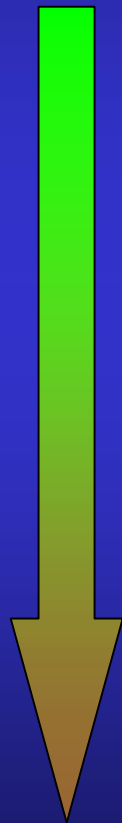




# Production chain

**QUALITY**

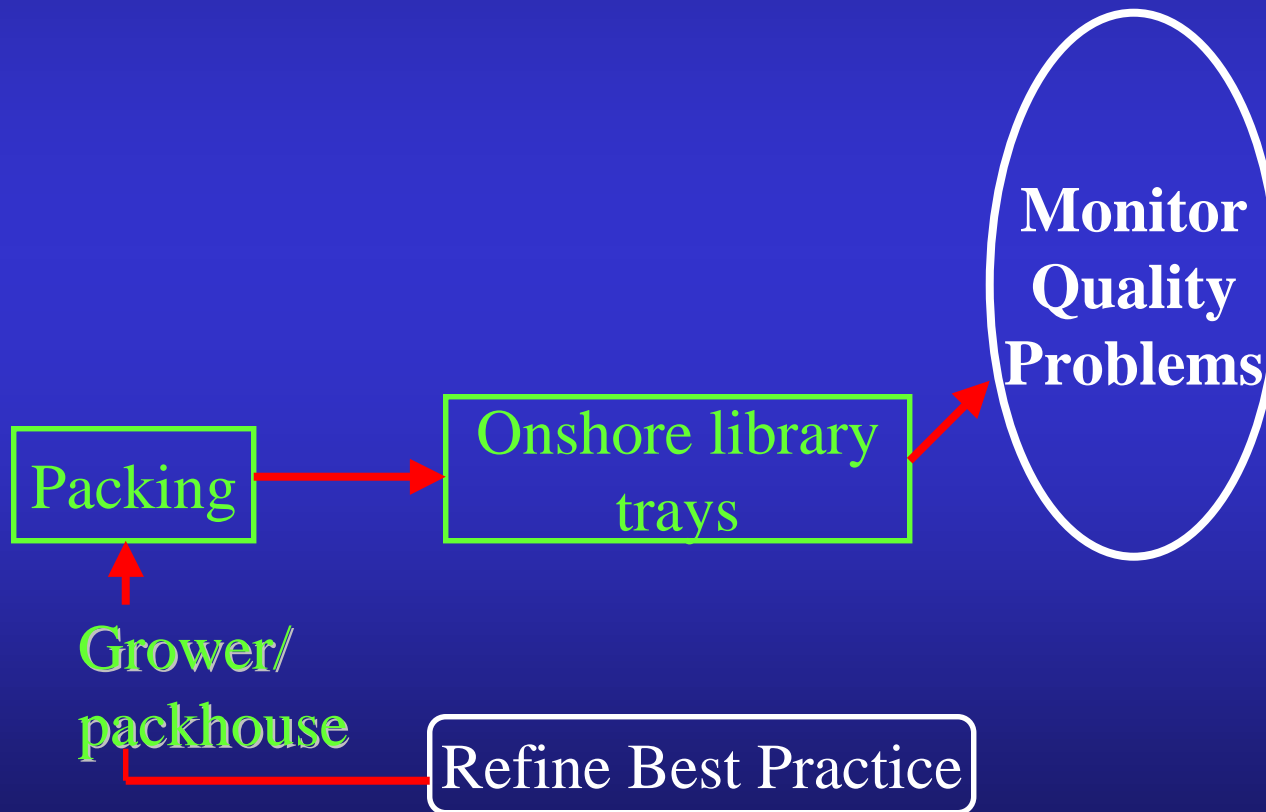
**TIME**

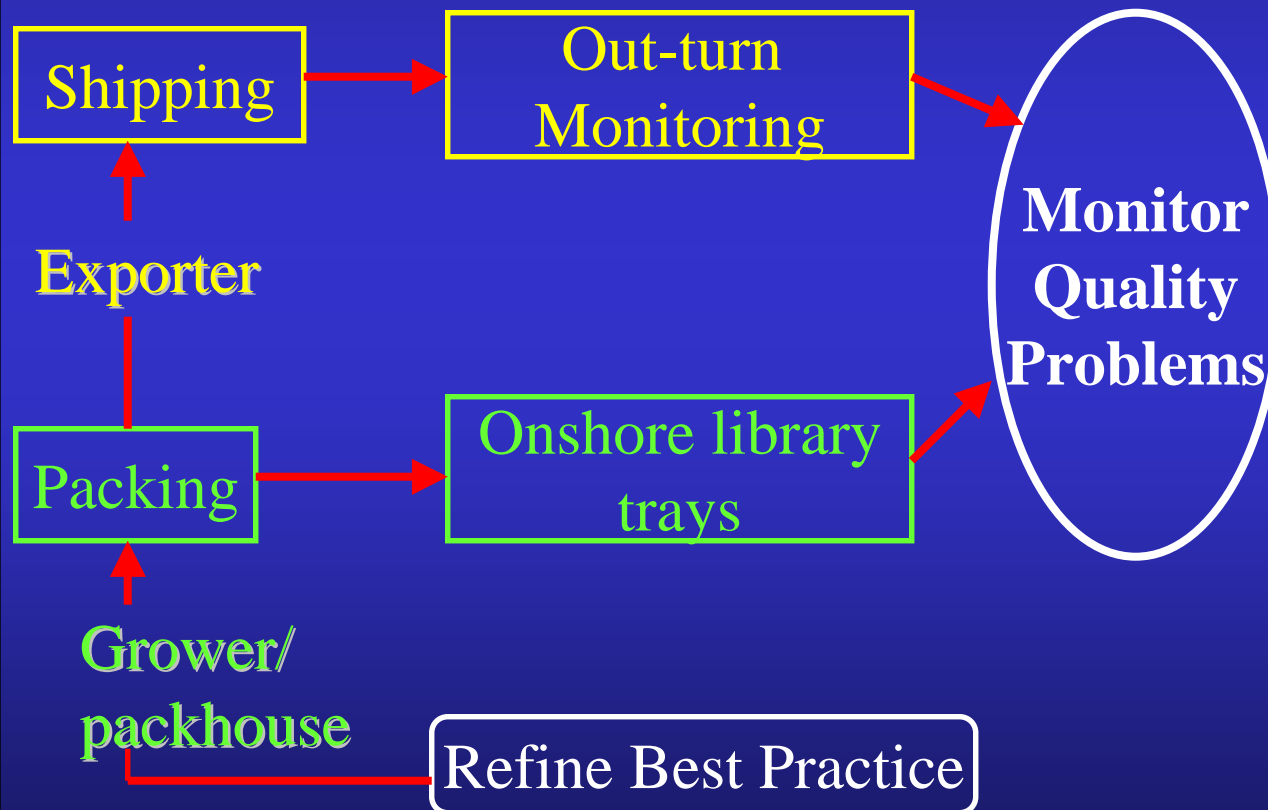


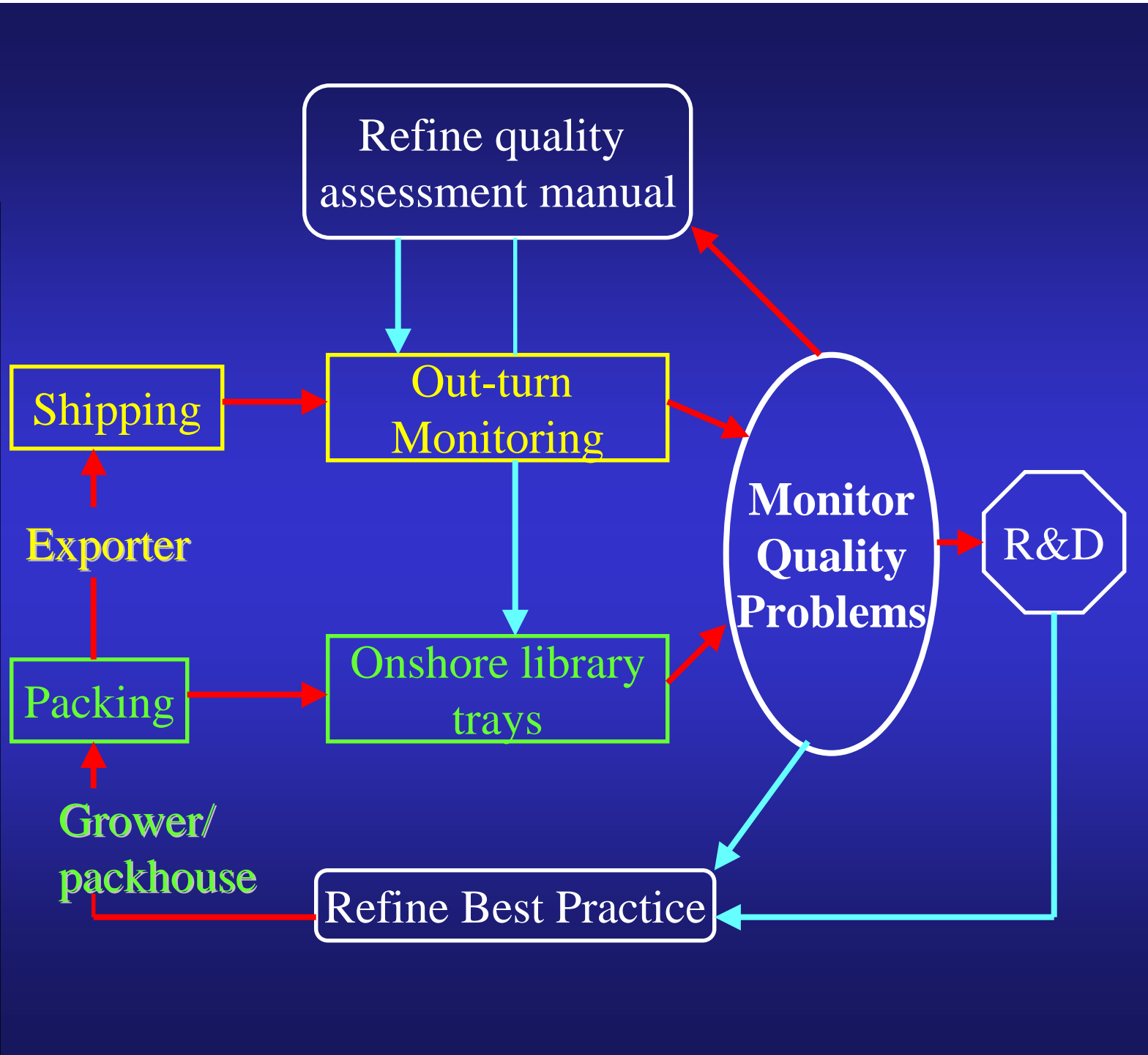


Grower/  
packhouse

Refine Best Practice









# Quality Assessment

- Standardized – AIC fruit quality assessment manual
- Fruit assessed at two stages:
  - Green (unripe)
    - after coolstorage
    - external
  - Ripe
    - ripened at 20 °C
    - firmness 85+
    - internal



# USA Best Practice Manual

- Identifies factors throughout the production chain which impact on fruit quality
- small increments in quality = major improvement in out-turn



# Onshore library trays

- Main source of feedback on quality for grower
- Localize problem onshore/offshore





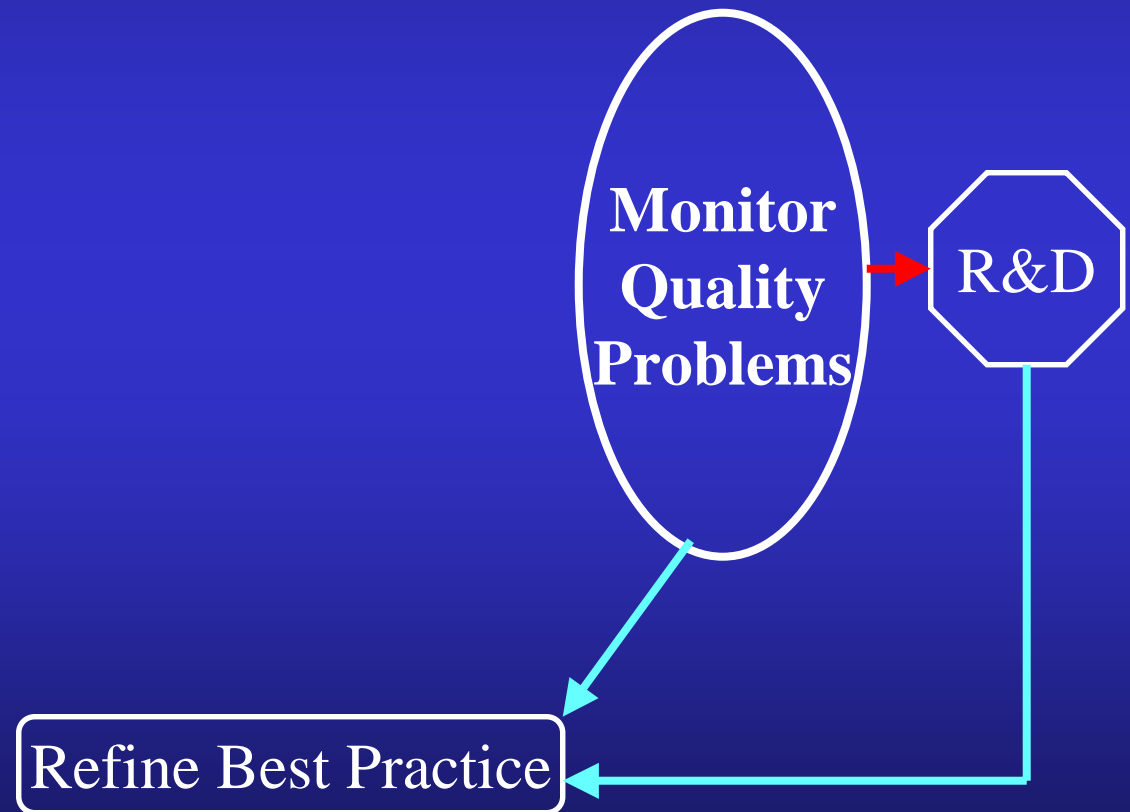
# Out-turn Monitoring

- Impartial assessor/confidentiality
- Jonathan Dixon based in LA for 4 months
- Joint programme with exporters
- Active participation of USA handlers
- P-PINS – ability to trace fruit to grower by pick date
- Last chance to monitor quality

## Incidence and severity of disorders USA Out-turn

<u>Green Fruit</u>	<u>Incidence</u>	<u>Severity</u>
Discrete patches	2.7	0.2
Fuzzy patches	26.8	0.7
Peel damage	89.4	10.1
<u>Ripe fruit</u>		
Stem end rot	56.0	1.7
Vascular browning	19.8	7.5
Rots	49.8	3.4

# The Feedback Phase



# Feedback pathways

## Grower:

- Library trays via shed
- ⇒ modify orchard practice

## Packhouse:

- Library trays
- Out-turn reports via exporter
- ⇒ refine handling practice
- ⇒ modify picking practice (picking gangs)
- ⇒ effectiveness of spray programmes



# Feedback pathways (cont'd)

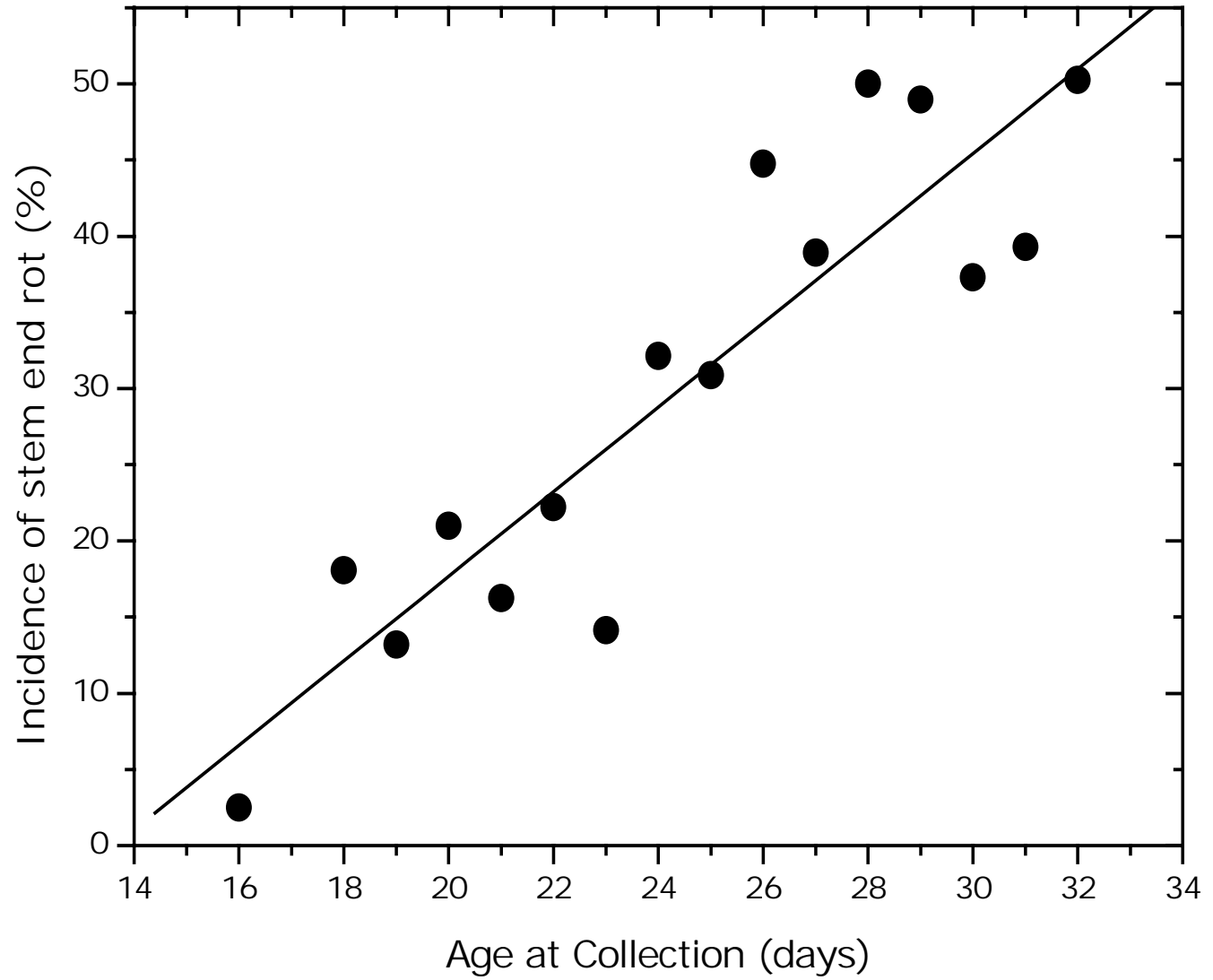
## Exporter:

- Out-turn data via AIC
- Shed/grower assessments
- Shipment summaries
- Digital images
- ⇒ modify shipping systems
- ⇒ modify loadout temperatures



# Fruit Age

- Time from pick to ripe
- Major impact on fruit quality





# Shipping system

- Reefers vs containers
- Containers:
  - conventional vs  
controlled atmosphere

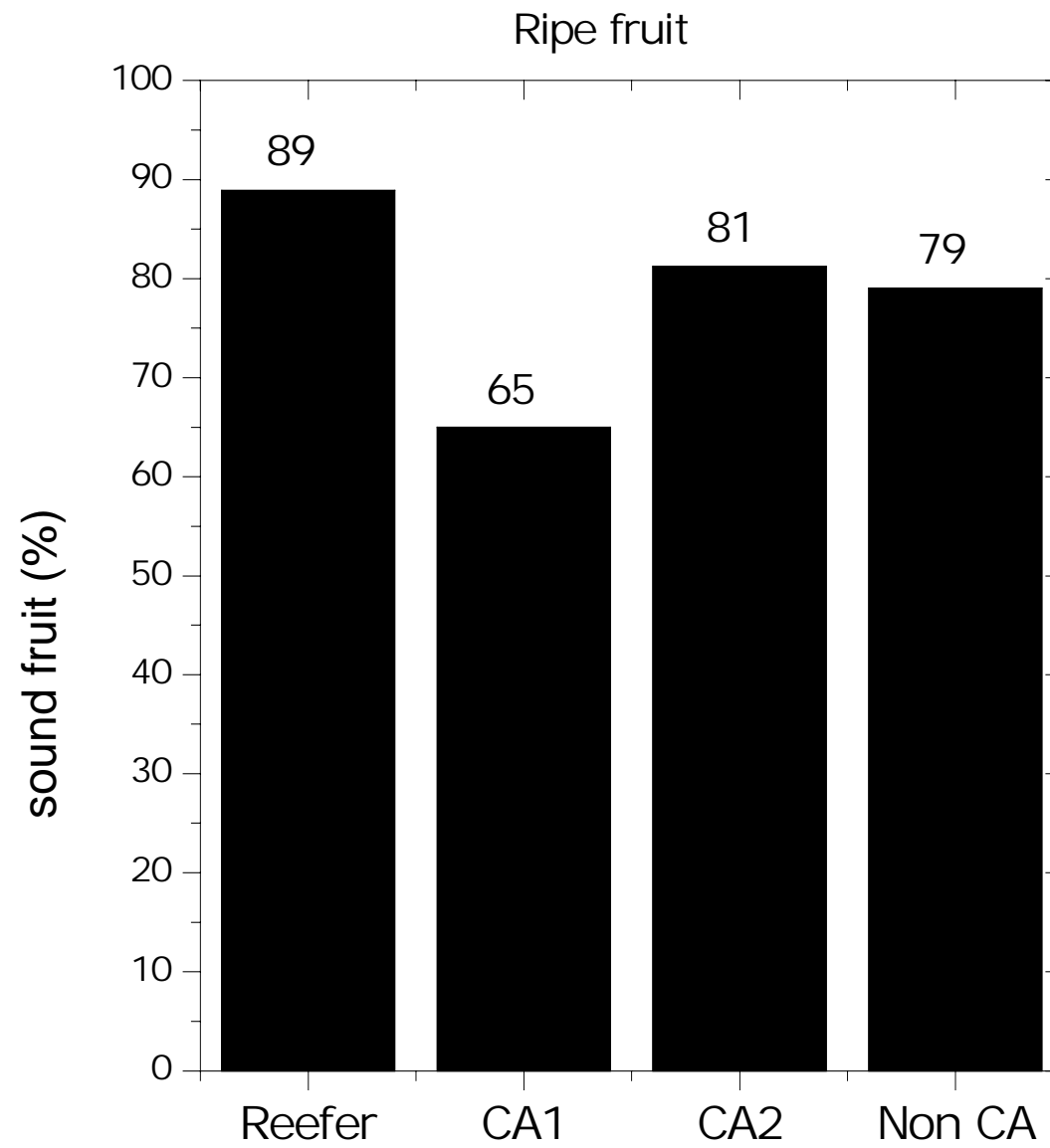


# PORT OF TAURANGA



*NO SMOKING*  
*FUMAR*





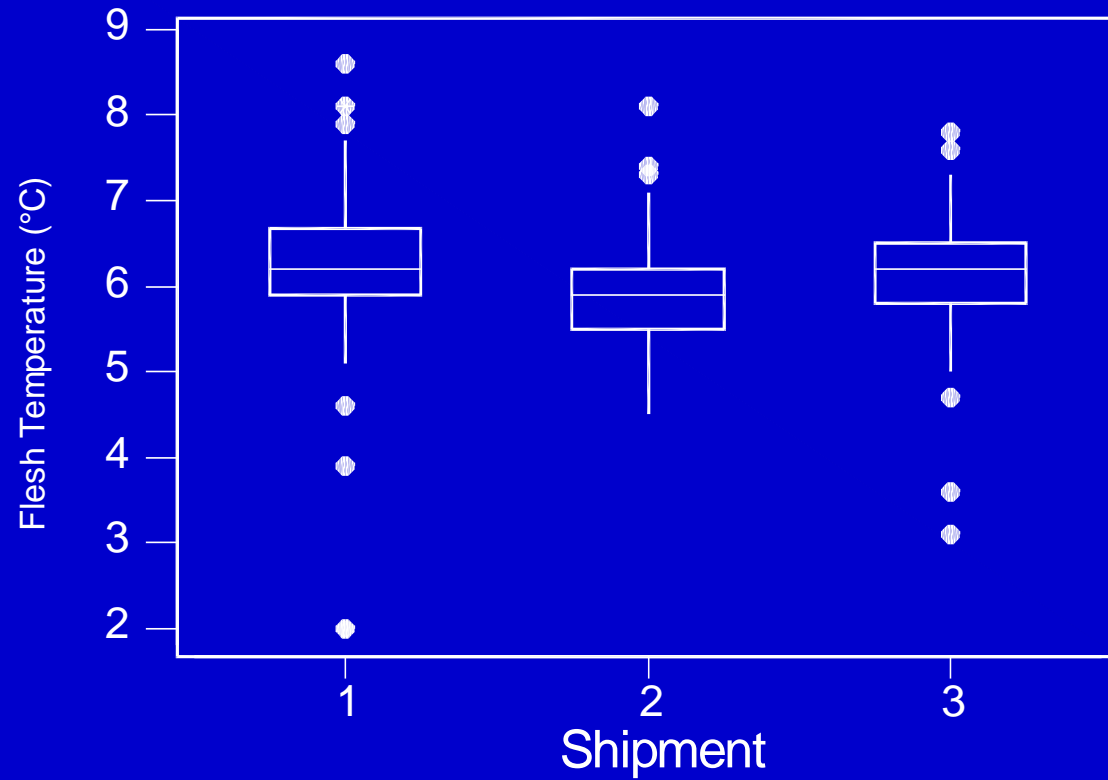
# Chilling Injury

- Similarity to green fruit rots in CA
- When does injury occur?
- R&D - Influence of CA on expression of symptoms





# Fruit Temperature Audits



Pre-treatment  
(2 days in air)

Storage (2 weeks)

5°C, air

5°C, CA

2°C



5°C







# Conclusions

- System has been successful
- Identified several factors impacting on fruit quality
- Remedial action taken
- Further improvement expected as handling practices modified



# Industry Structure

- Leadership role of AIC
- Dependent on co-operation of industry participants, especially exporters
- Seamless integration of all sectors
- Needs a cohesive industry structure
- Support of USA handlers critical



# The future

- Major improvements in handling and shipping systems
- Consistent quality opening up new markets
- Distance no longer an issue to quality in the market