



# CA Storage Safety

Presented to: AgroFresh Crunch Clinic

Date: August 12, 2009

# Controlled Atmosphere Storage Technology

- Landmark advance in apple storage technology
  - Extended seasonal availability of apples
  - Improved quality and nutritional value of our products to consumers
  - Provided for profitable expansion of apple industry
- However, there are no “perfect technologies”
  - Requires air tight storage rooms
  - Low oxygen environments
  - Confined space hazards
- Recent industry fatalities. . . . .



## Michigan, USA

<b>Date</b>	<b>October, 2008</b>
Location	Berrybrook Farms
Victim	59 year old with 15 years of storage experience
Circumstances	<ul style="list-style-type: none"><li>• Attempting to gather apple sample from CA room</li><li>• Sample on forklift indicated he had already collected one sample</li><li>• Unable to hold breathe during second entry into room</li><li>• Found dead in room</li></ul>



## Germany

<b>Date</b>	<b>January, 2009</b>
<b>Victim</b>	29 year old fruit company employee
<b>Circumstances</b>	<ul style="list-style-type: none"><li>• Entered closed CA room on weekend to collect samples</li><li>• Became unconscious and later died</li><li>• 52 year old male also entered CA room to look for employee lost consciousness</li><li>• Was revived by emergency medical personnel and recovered</li></ul>



# Chile

<b>Date</b>	<b>March, 2009</b>
Victims	<ul style="list-style-type: none"><li>• 18 year old</li><li>• 19 year old</li></ul>
Circumstances	<ul style="list-style-type: none"><li>• Both employees new to QC Department</li><li>• Found with weak vital signs in CA room by maintenance manager</li><li>• Had entered CA room without authorization to collect samples</li><li>• Both died at local hospital</li></ul>



# These Are Not the First CA Fatalities

- Will they be the last?
  - It's really up to you
- Who were the victims?
  - Some lacked training
  - Others knew the risks, but were complacent
    - Believed “it can't happen to me”
  - There are safer methods of handling samples
- Teach and train for SRM
  - Situational awareness
  - Risk assessment
  - Management of risk



## Safe Handling of Samples Without Entering CA Room



# SITUATIONAL AWARENESS

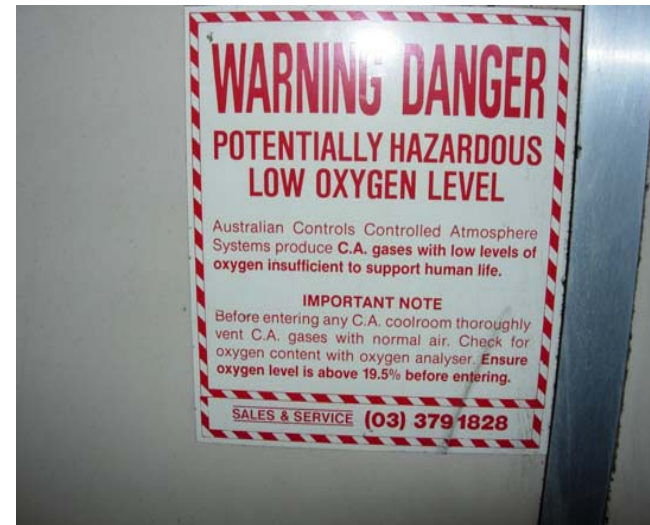
## Closed or Venting Rooms





# SITUATIONAL AWARENESS

## Posted Warning Signs



# RISK ASSESSMENT

**No early warning signs under typical CA conditions!**

Oxygen Content	Signs and Symptoms
15 – 19%	Decreased ability to work strenuously. May impair co-ordination and may induce symptoms in persons with coronary, pulmonary, or circulatory problems.
12 – 15%	Respiration deeper, increased pulse rate and impaired co-ordination, perception and judgment.
10 – 12%	Further increase in rate and depth of respiration, further increase in pulse rate, performance failure, giddiness, poor judgment and blue lips.
8 – 10%	Mental failure, nausea, vomiting, fainting, unconsciousness, ashen face, blue lips.
6 – 8%	8 minutes may be fatal in 50 – 100% of exposures; 6 minutes may be fatal in 25 – 50% of exposures; 4 – 5 minutes recovery with treatment.
4 – 6%	Coma in 40 seconds, convulsions, respiration ceases, death.



# Check Oxygen Concentrations Before Entry Remote Room Monitors or Portable Sensors



# A Darwin Award Candidate!



Who could be so foolish??



# Don't Let It Be You!



We don't want to tell you how to run your  
business. . . .

We just want to keep our customers and  
their employees safe.

Thanks for listening

