Asia-Pacific Economic Cooperation

Dialogue on Risk Management in Wine Trade
5-6 November, 2012 - Auckland, New Zealand

Food Safety Risks

Changes to Risk Profiles

- *case studies*

Conclusions

Dr Markus Herderich
Group Manager – Research
The Australian Wine Research Institute

Wine & Food Safety Risks

- wine = very old product
- well established & understood production processes
- low risk, safe product

- wine sector is diverse
- significant variations in the regulation of winemaking and labelling, which may produce impediments to trade or hold back innovation

- compliance with all applicable laws, food safety, regulatory and quality requirements must never be compromised

Wine & Food Safety Risks

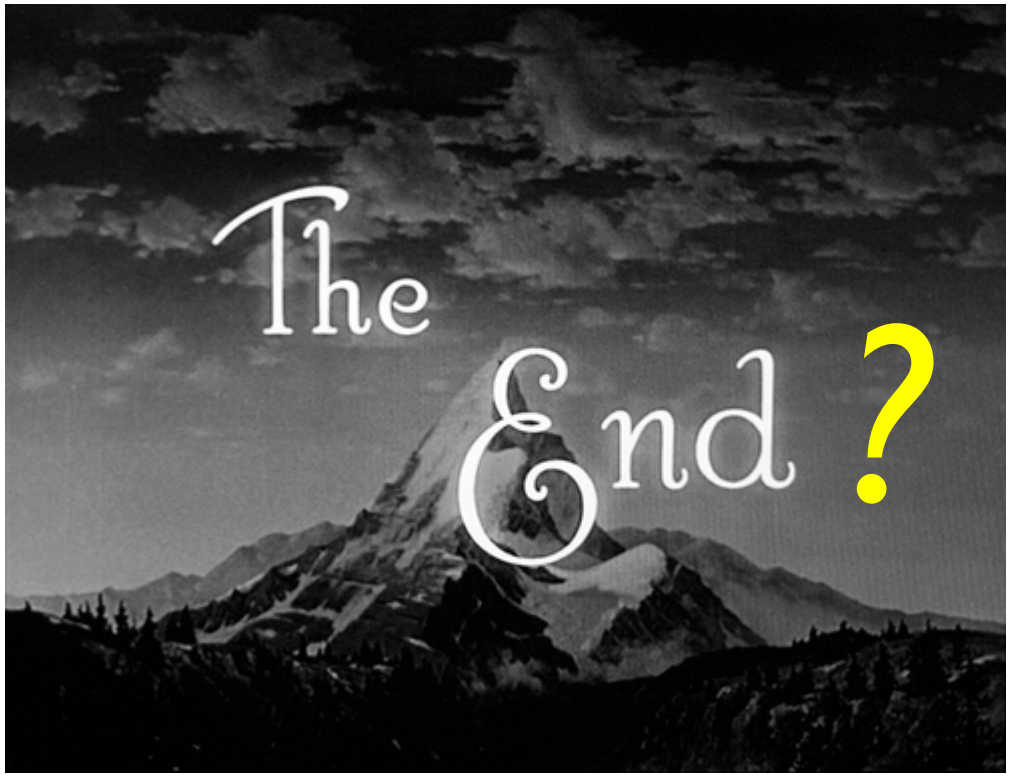
- ***low risk, safe product***
- ***microbiological safety risks***
  Louis Pasteur "Wine is the most healthful and hygienic of beverages"..
- ***chemical & physical hazards***

	Hazard	*Control*
agrochemical residues oil or hydraulic fluids	exceeds MRL	spray diaries don't use grapes
SO_2	respiratory problem in susceptible consumers	accurate measurement of additions &final concentration
DMDC	methanol	control dosage
allergenic protein (fining agents)	effect on susceptible individuals	warning labels; alternative products
glass pieces in bottles	ingestion by consumers	bottling procedures

- Christaki & Tzia "Quality and safety assurance in winemaking"
  Food Control 13 (2002) 503–517

Wine & Food Safety Risks

- ***low risk, safe product***
- ***small microbiological safety risk***
  Louis Pasteur "Wine is the most healthful and hygienic of beverages"..
- ***limited chemical & physical hazards***

➢ 

Wine & Food Safety Risks

Changes to Risk Profiles:

- ***Case studies***

  Changes to production and transport

  Impact on Wine Quality

Practice changes & changes to risk profiles:

- ***Winery refrigeration systems & brine reticulation***

  > widely used for must cooling &
  to limit oxidation, for juice clarification,
  to control fermentation rate,
  cold stabilisation

  > 'brine': secondary coolant with a
  freezing-point suppressant

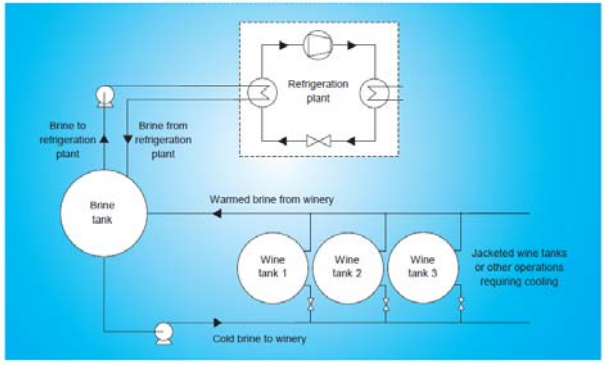


Figure 2. Simplified brine reticulation system

- ***'brine' based on water, ethanol & salt***

  (ie replace glycol based freezing-point suppressants)

- ***colorant added to brine to facilitate leak detection***

  LOD 0.001% (10ml brine in 1000l wine) by HPLC-ESI-mass spectrometry

Practice changes & changes to risk profiles:

- ***Bulk wine export & bottling in market***
  - **Continuing growth** of bulk exports (53% by volume in Aus 2011/12)
  - **Many benefits** of bulk exports
    Smaller temperature variation during transit & increased shelf life,
    cost effective & environmental friendly,
    reduced damage and more flexibility through packaging in market

- **Potential risks**
  - contamination & taints
  - oxidation from defective seals or vapour barriers
  - uncontrolled handling, storage and bottling practices overseas

Practice changes & changes to risk profiles:

- ***Additives & processing aids***
  local agents & distributors, overseas manufacturer

- **Example: L-(+) tartaric acid**

- **Potential risks**
  - ❑ D/L-tartaric acid instead of L-(+) tartaric acid
  - ❑ tartaric acid bound to taint compounds, taint released during winemaking
  - ❑ packaging is not vapour proof, contamination during transit
  - ❑ standard contracts from sellers with comprehensive waiver of responsibility

- **Solutions**
  - ✓ Review terms & conditions
  - ✓ Changes to packaging in collaboration with manufacturer
  - ✓ Review & improve goods–in QC

Practice changes & changes to risk profiles:

- ***Low alcohol wine products***

Lowering alcohol in wine, wine & health

- mutual goal:
  to reduce the harmful consumption of alcohol
- labelling

- **wine production requirements (Nov 2011)**
  FsANz 4.5.1 'minimum of 4.5% ethanol'

Practice changes & changes to risk profiles:

- ***Low alcohol wine products***
  - ❑potential risk to microbiological stability and wine quality

  because:
  - ❑new product category
  - ❑significantly less alcohol (5-6%)
  - ❑presence of residual sugar
  - ❑trend to lower SO_2

- Solutions:
  - Being aware of the challenges, pro-active, explore technologies for monitoring & improving microbiological stability

Food Safety Risks & Changes to practices & emerging risks

Conclusions

- wine: very old product, low risk& safe product
- practice changes may impact on risk profiles
- emerging risks mainly impact on wine quality
- *key aspects of managing emerging risks:*

  pro-active

  communication & open dialogue

  technical capabilities to identify & resolve potential risks