Food Safety Risks

Changes to Risk Profiles

- case studies

Conclusions

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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**

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>agrochemical residues</td>
<td>exceeds MRL</td>
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<tr>
<td>oil or hydraulic fluids</td>
<td>spray diaries</td>
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<tr>
<td></td>
<td>don’t use grapes</td>
</tr>
<tr>
<td>( \text{SO}_2 )</td>
<td>respiratory problem in susceptible consumers</td>
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<tr>
<td></td>
<td>accurate measurement of additions &amp; final concentration</td>
</tr>
<tr>
<td>DMDC</td>
<td>methanol</td>
</tr>
<tr>
<td>allergenic protein (fining agents)</td>
<td>effect on susceptible individuals</td>
</tr>
<tr>
<td></td>
<td>warning labels; alternative products</td>
</tr>
<tr>
<td>glass pieces in bottles</td>
<td>ingestion by consumers</td>
</tr>
<tr>
<td></td>
<td>bottling procedures</td>
</tr>
</tbody>
</table>

- 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**
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

- **‘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 SO₂

- **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