Chenin blanc Wine Research (2010-2012)

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Chenin blanc Conference, Cape Town,
24 September 2012
Presentation Overview

• Wine Science today
• Context / background
• Focus on Chenin - challenges
• How can research help
• Research results and conclusions
• Challenging some beliefs
• Future research directions
Today, wine science is about….

- **Chemistry**
  - grape
  - fermentation
  - maturation

- **Sensory**
  - intrinsic taste
  - smell

- **Consumer**
  - perceptions psychology
  - choice
  - attitude towards

- **Viticulture**
  - winemaking

- **Wine Style**
  - identity
Wine Science at SU ..... 

Relate and interpret sensory attributes 

chemical measurements 

Relate and interpret 

consumers
Our network

• Several disciplines involved

• Stellenbosch university

• Our international collaborators:
  – ConsumerCheck project
    • Norway, Italy, Australia, SA, Netherlands
  – Consumer perception
    • France, USA
Chenin blanc team @ SU 2010-2012
International ConsumerCheck project

Started July 2009

• Program leader: Tormod Næs, Nofima Mat, Norway

• Four year project financed by National Science Foundation (NFR) and Norwegian food industries

• International collaboration (separate funding)
  – South Africa (Univ. Stellenbosch)
  – Australia (CSIRO)
  – Italy (Univ. Macerata)
  – Denmark (Univ. Copenhagen)
  – The Netherlands (Logic8)
Focus on Chenin blanc

• Why Chenin?

• Interesting diversity in styles/features

• Industry and research challenge

<table>
<thead>
<tr>
<th>Style</th>
<th>Residual Sugar (RS)</th>
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<tbody>
<tr>
<td>Fresh &amp; Fruity</td>
<td>&lt; 9 g/L RS</td>
</tr>
<tr>
<td>Rich &amp; Ripe – Unwooded</td>
<td>&lt; 9 g/L RS</td>
</tr>
<tr>
<td>Rich &amp; Ripe – Wooded</td>
<td>&lt; 9 g/L RS</td>
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WINE SCIENCE AND SA CHENIN ..... OUTPUTS 2010-2012

SA Chenin blanc wine style research – 70 cellars participating

Relate and interpret

sensory attributes

database
~70 wines

relate and interpret

consumers

database
~70 wines

chemical measurements

perceptions
knowledge
liking
SA Chenin blanc wine style research – 70 cellars participating

Relate and interpret

sensory attributes

consumers

database ~170 wines

chemical measurements
For today’s presentation….. Challenges specific to sensory and consumer aspects

– Lack of objective data

– Technology platforms to be developed

– Information extracted
Questions

• Q 1 How can research assist the decision making consumers face in retail and restaurants?

• Q2 How can research identifying the core information?

• Q3 How can research add value in identifying opportunities and translating core information?
Consumer-perception analysis

**Question:** What is the consumers’ knowledge level and experience of Chenin blanc wine styles?

- **Survey:**
  - 6 Open-end questions
  - Associative group analysis technique (Szalay, 1970)
  - “When *xxx* is mentioned, what comes to mind?”
    - *Cultivar, Chenin blanc, bush vines, NLH, SLH wines*

- **Two wine shows:**
  - JHB Wine Fair 2010 (122 consumers)
  - Robertson Wine Fair 2010 (152 consumers)

- 5261 responses captured, categorised and scored
Challenge 1
Consumers knowledge & perceptions

Chenin blanc wine styles

Bush Vines

Robertson Wine Fair  JHB Wine Fair  Robertson Wine Fair  JHB Wine Fair
Challenge 2
Consumers' style identification

UNINSTRUCTED SORTING

PC1(26.7%)

PC2(13.9%)

W1 (RRunw)
W2 (RRunw)
W3 (RRunw)
W4 (FF)
W5 (FF)
W6 (FF)
W7 (FF)
W8 (RRw)
W9 (RRw)
W10 (RRw)

Group 1

Group 2

Group 3

Wooded
Unwooded

INSTRUCTED SORTING

PC1(37.5%)

PC2(17.4%)

W2 (RRunw)
W1 (RRunw)
W5 (FF)
W6 (FF)
W3 (RRunw)
W4 (FF)
W7 (FF)
W8 (RRw)
W9 (RRw)
W10 (RRw)
W11 (RRw)

Group 1

Group 2

Group 3

Wooded
Unwooded

Challenge 2
Consumers’ style identification
How does knowledge of CB wine style CONCEPTS influence wine preferences?

How does knowledge of CB wine style CONCEPTS influence wine preferences?

Blind wine tasting

Informed wine style tasting

Preference score

4.8 5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2

Wines
Challenge 3
Sensory attributes: a complex story unfolds
How well do the three styles separate?

What are the characteristic sensory profiles of Chenin blanc?
What are the descriptors generated for each style?

Fresh fruit

Rich fruit

FF
RRUW
RRW
What are the descriptors generated for each style?
Challenging some beliefs
Does the consumer interact enough with the product?
Future work: effects of vinification techniques on Chenin character
Spontaneous vs inoculated.... Yeast population dynamics

Distribution of yeast species

- Saccharomyces cerevisiae
- Metschnikowia pulcherrima
- Zygosaccharomyces bailii
- Candida zemplinina
- Hanseniaspora vineae
- Kodamaea ohmeri
- Lachancea thermotolerans
- Hanseniaspora uvarum
- Candida sp.
- Issatchenkia terricola
- Hanseniaspora guilliermondii

After crushing
Beginning fermentation
Middle fermentation
End Fermentation

Must
Spontaneous
Inoculated
Acknowledgements

• Post graduate students
• US Colleagues
• Chenin Blanc Association
• The QDA tasting panel
• Winemakers
• Private Cellars
• Winetech IWBT-W 10/01
• NRF

*Investigating the correlation between chemical, sensory and consumer preferences of selected South African wines: Implementation of novel software IWBT-W 10/01*