An innovative soil management impacts white grapes and wines sensory qualities

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Sustainable grape production entails the implementation of management practices that permit low pesticide inputs, maintain grapevine performance, and conserve soil quality. The **nutrition of the vine** is one of the major parameters influencing the nature and the content of the secondary metabolites produced by the vine. These metabolites have a direct impact on the organoleptic quality of the wine. The present work investigates the quality of production of two varieties of grape (Riesling and Pinot Gris), in different combinations of locations (in Alsace, France), vintages and vineyards management.

**INTRODUCTION**

**MATERIALS & METHODS**

1. Six innovative cultures

<table>
<thead>
<tr>
<th>No.</th>
<th>Site system</th>
<th>Vintage</th>
<th>System</th>
<th>Location</th>
<th>Harvest dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ChâtenAB</td>
<td>Riesling</td>
<td>organic</td>
<td>Châtenois</td>
<td>10/09, 08/09</td>
</tr>
<tr>
<td>2</td>
<td>IngerAB</td>
<td>Riesling</td>
<td>organic</td>
<td>Ingersheim</td>
<td>18/09, 17/09</td>
</tr>
<tr>
<td>3</td>
<td>RibeauAB</td>
<td>Riesling</td>
<td>organic</td>
<td>Ribeauvillé</td>
<td>06/10, 21/09</td>
</tr>
<tr>
<td>4</td>
<td>RibeauPI</td>
<td>Riesling</td>
<td>integrated</td>
<td>Ribeauvillé</td>
<td>06/10, 21/09</td>
</tr>
<tr>
<td>5</td>
<td>RouffPI</td>
<td>Pinot Gris</td>
<td>integrated</td>
<td>Rouffach</td>
<td>17/09, 22/10</td>
</tr>
<tr>
<td>6</td>
<td>RouffPIopti</td>
<td>Pinot Gris</td>
<td>Integrated optimum</td>
<td>Rouffach</td>
<td>17/09, 22/10</td>
</tr>
</tbody>
</table>

2. Analyzed products

| White berries 2014 and 2015 | White wines 2014 from microvinification |

3. Chromametrics measurements

- L* (lightness), a* (green/red), b* (blue/yellow) color system on 4 berries of 12 grapes of each place per site (244 repetitions)

4. Sensorial analysis methods

- Sensory profiles estimated by quantitative descriptive analysis

<table>
<thead>
<tr>
<th>berries</th>
<th>wines</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 attributes</td>
<td>15 attributes</td>
</tr>
</tbody>
</table>

Characterization of the hedonic quality of wines

- Typicality assessment
- Hedonic ratings

- 8 notes
- 5 notes

5. Sensory Panels

| 12 trained assessors | 9 oenology wine experts | 61 consumers of white wines |

Descriptive analysis

Hedonic test

**RESULTS**

- **Sensory profiles of berries not dependant from the system type**

- **berries chromametric measurements correlated with expert color ratings**

- **Wines with variable sensory qualities**

**CONCLUSION & PERSPECTIVES**

- The **sensory visual and aromatic attributes of harvest berries** enabled to distinguish the six sites-systems and the two studied years, but not the organic systems from the integrated ones.

- The **chromametric measurements** were correlated to the expert color ratings in relation to the grape variety.

- The **sensory profile of the wine** was linked to berry quality at harvest.

- There is **no significant impact on consumer preferences** of the wines.

- It would be interesting to continue describing the sites-systems with the production practices and others studied years.