

Sensory Analysis Workshop

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Sensory Analysis exercises

LOGISTICS

- We will taste a number of wines throughout the seminar. It is not necessary to have a fresh glass for each wine and we'll generally move from lighter to heavier wines without the need for rinsing glasses.
- We will have a small **taste** of each wine. The tasting portion may seem a bit tiny at first in the first glass. Then later, it will seem excessive in the last glass if you **drink** all of the wine. Please do not be bashful about spitting.

It is imperative that you pace your tasting and be responsible for your own sobriety. Telling the officer that you attended a sophisticated wine tasting will not grant you immunity in a DUI situation. This may sound stern, yet it is a matter that we must take very seriously.

- Please avoid applying a fresh shot of perfume or cologne when we're in session. It's also best not to brush your teeth immediately prior to or during the seminar.
- Crackers and/or bread are helpful but not a necessity. Don't feel compelled to consume them between tastes. Stay hydrated and drink water.
- Please tidy up when you leave, wiping up any spills and throwing away spit cups and any food.
- Please bring your handouts/binder to each segment of the seminar.

Objectives & Goals:

- Selection (Buyers)
- Follow the elaboration or winemaking process [Cellar Masters]
- Prepare Sales arguments or strategy
 - [Sales reps., wineshops, restaurant floor staff,...]
- Organisation & Preparation of the Wine List - Wine and Food pairing [Restaurants]
- Monitor the shelf life or life span of a wine.
 - [Manage for optimal consumption period]

Tools

- The Corkscrew
- Wine glass
- Cachottiers (if a blind tasting)
- Spittoon
- White table cloth and napkins
- Instruments for note taking

Element That can Influence an Analysis:

- **Aromatic parasites** (Perfumes, coffee, tobacco, fresh paint,...)
- **Excessive noise**
- **Lighting** (too dark, too bright)
 - Lab
 - Cellar
 - Tasting room
- **Temperature**
 - Environmental
 - Wine
- **Personal Physical State**
- **Opinions of others**
- **Order in which the tasting is conducted**

Chronological Order for Tasting



Visual Examination



Olfactory Examination




Gustatory Examination

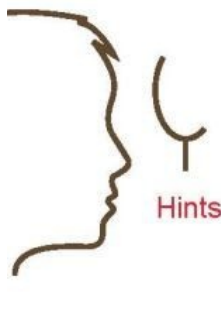



Post-gustatory Examination

VISUAL ANALYSIS

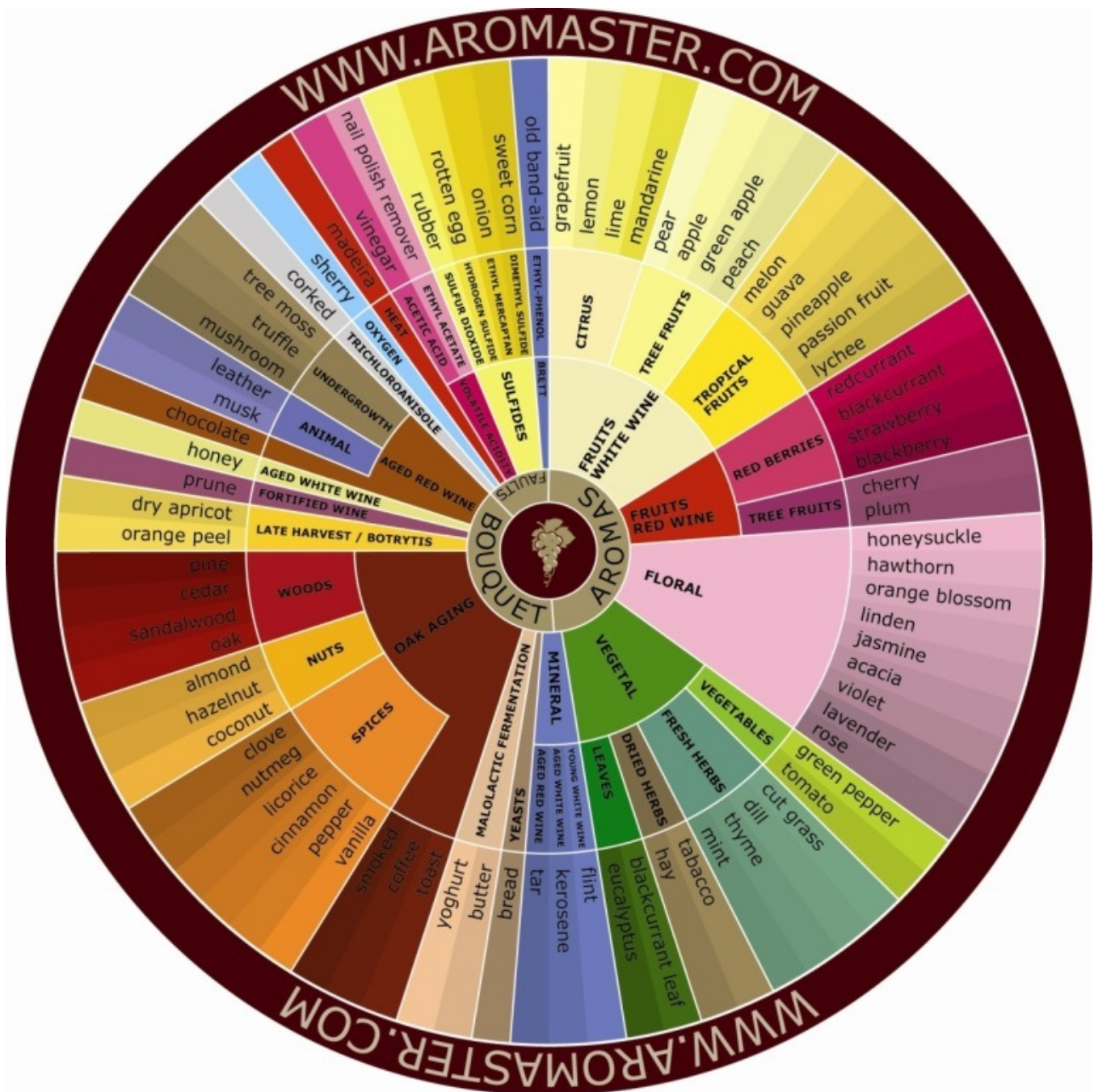


Color	1	Pale yellow	Clear yellow	Yellow	Gold	Old gold
Hints - Hues	2	Green	Light green	None	Orange 	Amber

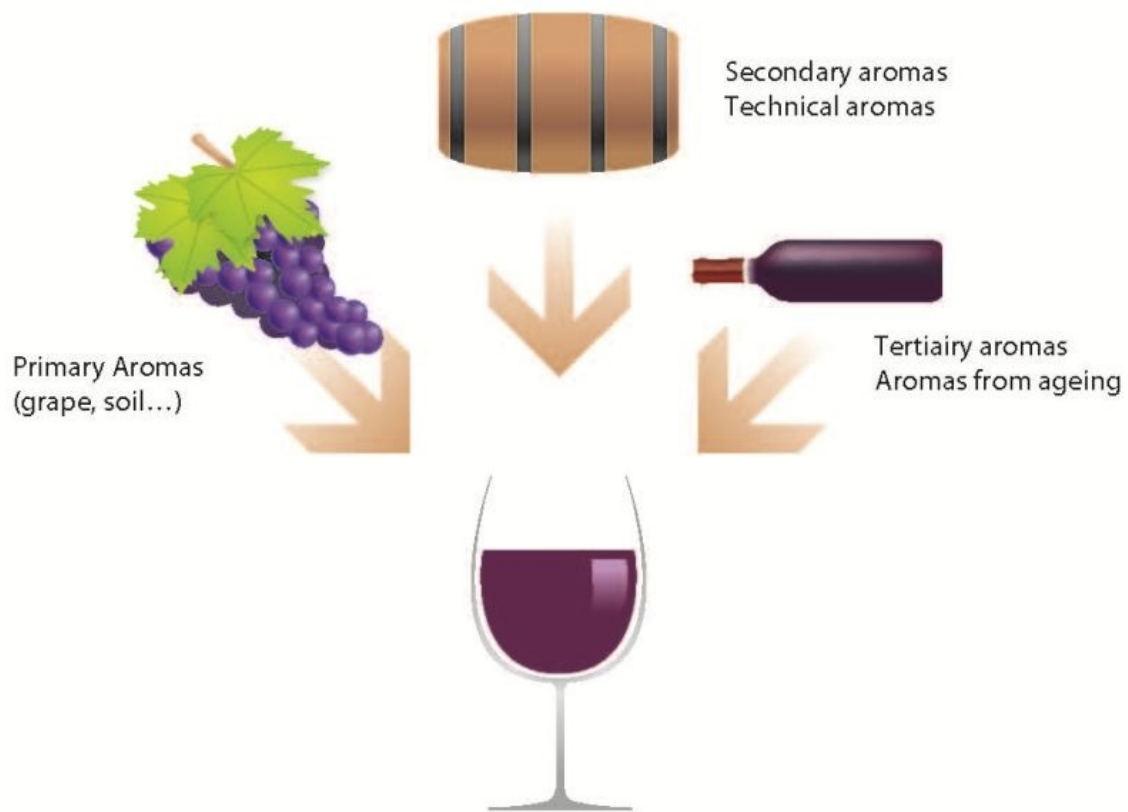


Color	1	Pale red	Clear red	Bright red	Dark red	Black red
Hints - Hues	2	Blue	Light violet		Light brown	Brown

OLFACTORY ANALYSIS



Aroma Origins



Aromatic characters of Wine

Character	Primary Pre- Fermentation	Secondary Fermentation	Tertiary Post Fermentation
Fruity			
Floral			
Vegetal/ herbal			
Spicy			
Woody			
Mineral			
Torrified			
Animal			
Chemical			

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Name _____

Score _____

Olfactory Analysis:

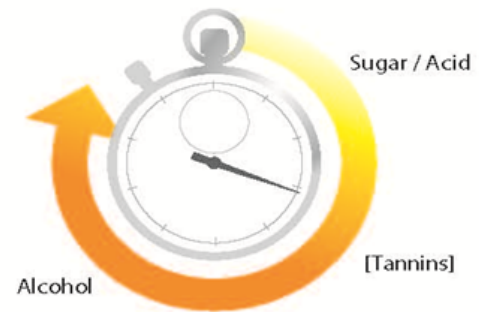
N+	Character	Aroma	Wine Style

Gustatory Examination

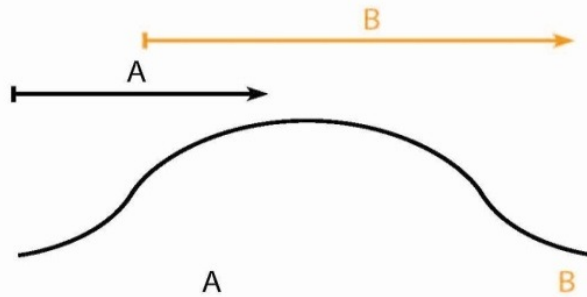
Lingual perceptions



Chronological order of Savours



Sensory Perceptions & Wine Evolution



White wines

Visual	Green hues	Orange hues
Olfactory	Primary aromas - Fruits acid (pomme-agrumes) - Flowers (white) - Herbal - Mineral - Varietal aromas	Tertiary aromas - Sweet spices (vanille...) - Overly-ripe or jammy fruits - Yellow fruits - mushroom & foresty aromas
	Secondary aromas - Woody - Fermentary aromas (yeast...)	
Gustatory	High acidity	Low acidity

Red wines

Visual	Blue or Violet hues	Orange - brown
Olfactory	Primary aromas - red fruits (cherries, strawberries, raspberries...) - Black fruits (black berries...) - Liquorice - hard spices (pepper...)	Tertiary aromas - Sweet spices (vanille...) - Macerated confits fruits - Torrified (coffee...) - mushrooms & foresty aromas - Leather, animal - Tabacco
	Secondary aromas - Wood - Smoke - Fermentation aromas	
Gustatory	Intenses tannins	Softer Tannins and afterwards a return to harder tannins at the end of its life.

Chemical Disorders:

Visual defect	Aspect	Cause	Prevention	Cure
Oxygen breakdown	<p>- Whites are dark yellow and eventually become brown sometimes leaving a deposit.</p> <p>-Reds are cloudy and becomes brown and eventually loses its color through sediments.</p>	<p>- Appears during vinification when there is a breakdown in the phenolic structure by an outside agent (i.e. temperature, O₂) cause by an enzyme (laccase) present during the harvest in the form of botrytis. The phenolic agent infected becomes sediment with a visual aspect or color of brown.</p> <p>Rarely seen when wines are bottled.</p>	<p>- Apply a phytosanitary treatment</p> <p>- Thermovinification,</p> <p>- SO₂</p>	Non
Protein breakdown	Wines are cloudy.	<p>Only occurs in white and rosé wines. Influenced by environmental changes such as heat, natural proteins become small visible flakes and eventually form into sediment.</p>	<p>-Healthy harvest practices</p> <p>-Collage with bentonite.</p>	<p>- Soutirage,</p> <p>- Filtration,</p> <p>--Collage</p>
Iron breakdown	<p>Whites are cloudy with bluish deposits</p> <p>Reds have a bluish deposit in the bottom of the bottle.</p>	<p>The presence of an excess of iron contact (staples, metal bins, wires,...) after an aeration The iron reacts with the polyphenols when there is 10mg/l in whites and 15mg/l in reds of iron.</p>	<p>-Avoid contamination</p> <p>-Use equipment in stainless steel</p> <p>-Collage au bleu</p>	<p>- Soutirage,</p> <p>-Filtration</p>
Copper breakdown	Can be in many different colors	<p>Appears with the absence of oxygen and /or presence of sulfur, when the concentration of copper is at least 1mg/l.</p>	<p>-Collage au bleu</p> <p>-Phytate de Calcium</p>	<p>-Soutirage</p> <p>-Filtration</p>
Tartaric crystals	Small bright white crystal sediment that can develop in wines	<p>Tartaric acid, the major acid of the must, will develop as small white crystals either in the bins in a bottle.</p>	<p>-Cold treatment</p> <p>-Electro dialysis</p>	<p>-Soutirage</p> <p>-Filtration</p>
Oxidation	<p>Brick color for a young red wine. Gold color for a young white wine. In both cases the wines smell maderized.</p>	<p>-An excess of oxygen present in the wines.</p> <p>-For red, wine which have less tannins are very sensitive. Caused by formation of acetaldehyde.</p>	<p>- Limit aeration during Vinification and maintain SO₂.</p>	<p>-SO₂</p> <p>-Collage</p>

Chart by Melba Allen

Chemical Disorders:

Olfactory Defect	Aspect	Cause	Prevention	Cure
Hydrogen Sulfide	Smells of rotten eggs. Opposite of oxidation. More like reduction.	Produced when yeasts is stressed. Yeasts metabolize proteins releasing sulfur. Also called light sickness, wine that are exposed to neon lighting for a long period.	Odor can be eliminated by aeration through copper. Bottles stocked away from continual lighting.	-Ammonium salt during fermentation. -Blow Nitrogen or Carbon Dioxide through wine -Put a penny in the glass This takes a few minutes
Rotten vegetation or Mushrooms	Smells of mold or mildew	-Weather induced fungus, odium, and mildew. -Unclean or poorly cleaned barrels -Humid cellar.	-Sanitary treatment of vines when necessary. -In depth sanitary measures for barrels. -reduce humidity problems in the local.	
Mercaptan	Potent. Smells rotten onions, or cooked cauliflower.	Formed when hydrogen sulfide is not treated after fermentation.	-Sanitary treatment of vines when necessary.	
Trichloroanisole (TCA) Cork Taint	Smells of wet cork or young wood	TCA	Avoid bottles with corks which do not seal tightly.	
Cardboard	Smells and taste of wet paper	Transmission of odor from the celluloses of certain filters.	Rinse very well the filters before each use.	
Oil, grease	Carburant odor.	Contamination by motorized equipment. Grapes are very sensitive to oils.	Eliminate anything harvested that has come into contact with gasoline. -Use alimentary oils on equipment that come in direct contact with the fruit and wine.	
Solvent		Odor from fresh paint, polyester, or styrene solvents.	-Use alimentary paint. -Use cuves of very good polyester without styrene residual.	
Herbs		Oxydation hexane, herbaceous substance found in stems and other vegetation parts of the grape.	Harvest grapes when ripe.	
Geranium	Smell of geranium leaves and flowers.	Derived from using sorbic acid in the presence of a lactic bacteria.	Prevent yeast and mold development in the local. SO ² and sterile filtration.	

Chart by Melba Allen

Microbiological Disorders

From fruit to wine, undesirable germs and bacteria can develop and transform the newly formed wine into another liquid all together. Called Wine sickness, these disorders will develop by accident in most incidents in the form of Volatile acids. These disorders can also be divided into two types of deviations, Bacterial and Yeast deviations.

Although some of these wine illnesses can be detected through sight or smell, others become more evident through taste.

Bacterial deviations:

Gustatory Defect	Aspect	Cause	Prevention
Acetic Acid -VA	Characterized as vinegar.	The breakdown of alcohol by an acetic bacteria using oxygen.	Very controlled sanitary conditions of all equipment. Preserve wines from air contact.
Ethyl Acetate-VA	Smell of glue, nail polish remover.	Acetic bacteria oxidize alcohol and create acetic acid and acetate ethyl.	Very controlled sanitary conditions of all equipment. Preserve wines from air contact
Lactic Acid-VA	Wine taste surprisingly soft or sweet and sour.	Lactic bacterial degradation of glucose into acetic acid. Stops prematurely fermentation.	Avoid temperatures of 38° C or higher during the alcoholic fermentation of the must.
Tartaric defect-VA	Loss of acidity and color. The cork will have a tendency to be pushing out of the bottle.	Bacterial degradation of Tartaric acid of the grape into acetic acid with the letting off of CO ²	Avoid high temperatures during the vinification process. -SO ²
Oily defect	The wine is viscous and oily looking. Bacterial filaments are visible.	Lactic bacteria leaves elements that are viscous that forms with the presence of sugar residual.	-SO ² -Shake the wine violently.
Glycerine defect	Altered color and very pronounce taste of bitterness	Glycerol degraded by lactic bacteria that causes bitterness	-SO ²
Bottle Fermentation Malo-lactic	Fizziness within the bottle	A fermentation that takes place in the bottle and not in the cuve. CO ² is given.	-Maintain SO ² levels in wine that do not go through a Malo.

Chart by Melba Allen

Yeast Deviation:

Gustatory Defect	Aspect	Cause	Prevention	Cure
Brettanomyces vini	Smells of mice or squirrels, barnyard, horse,... Create acetate acid and other fatty acids in the bottle.	Phenol acids create aromas which are disagreeable of acetaldehyde or 'mousy'.	Practice of very good sanitary and hygiene practice in the local.	
Candida vini	Yeast form a white covering on the surface of a wine. Used for oxidized wines like Sherry.	The breakdown of acids and alcohol into ethanol which produces le gout d'event.	Conserve the wine in absence of air.	
Hansenula et Pichia	Wine vinegar	Both develops on the wine surface and produces ethyl acetate(vinegar).	Fill complete cuves and barrels.	
Saccharomyces ludwigii	Odor of wine vinegar and granules that gives off CO ² .	Produces acetate ethyl in sweet wines.	Have exceptional Hygiene practices in the local. SO ² is not enough!	
Schyzoscharomyces	Refermentation of sweet wines in the bottle.	Breaks down the sugar residual, while also giving off disagreeable bubbles and odors with CO ²	Have exceptional Hygiene practices in the local. SO ² is not enough!	
Saccharomyces cerevasiae	Alcoholic fermentation within the bottle releasing CO ² . Used for sparkling wines.	The breakdown of sugar into alcohol and gas (CO ²).		

Chart by Melba Allen

Summary:

Flaws: minor departure from acceptable norms. Wines are usually drinkable, **although not advised.**

- SO^2
- Volatile Acids
- Brett
- Diacetyl
- Potassium Sorbate
- Sub-threshold levels of reduced sulphur compounds.

Faults: Wines usually undrinkable.

- Acetaldehyde
- Ethyl acetate
- TCA or Cork taint
- Geranium taint
- Organoleptically obvious levels of reduced sulphur compounds.

Most difficult to diagnose correctly without testing

- Reduced Sulphur compounds and Brett.

Essential tests: improvement with penny

- H_2S , Mercaptan
- Rubbing sample between hands and sniffing (Brett).

George Gibson & Mike Farkas Article for competition wine judges and of interest to competitors

Poor Winemaking Practices (PW).			
Name of Problem	Flaw	Fault	PW
Reduced Sulphur Compounds	20%	80%	20%
Acetaldehyde	5%	95%	100%
MLF in Bottled Wine	40%	60%	80%
Yeast Fermentation in Bottled Wine	50%	50%	100%
Ethyl Acetate	5%	95%	10%
Inadequate Settling of White Juice	80%	20%	100%
Tyrene (T.C.A.= corkiness)	20%	80%	0
2,3 ethoxy, 3,4 hexadiene (geranium)	5%	95%	90%
Candida-Acetaldehyde	0	100%	100%
Volatile Acidity - acetic acid	80%	20%	80%
Volatile Acidity - ethyl acetate	5%	95%	80%
Diacetyl	90%	10%	50%
Brettanomyces Contamination	80%	20%	0
Chemical Contaminants	0	100%	100%
Additive Overuse (SO2, Sorbate, etc)	90%	10%	100%

TASTING DATE :

Identity : Batch N° :

Source :

Bin/Cru :

Vintage :

Varietal(s) :

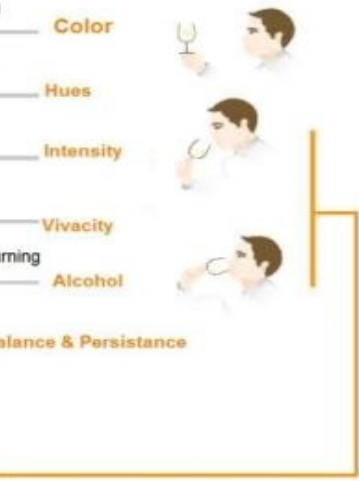
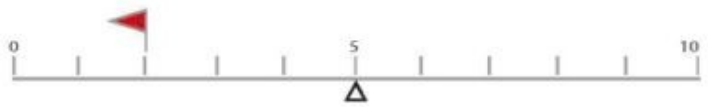
Other :

Price: **Bottled** **Cork** **Bouteille**

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④ Aromatic Spectrum :



Tasting date :

Identity : Batch N°		
Source :		
Bin/Cru :		
Vintage :		
Varietal(s) :		
Others :		
	Bottled	Cork	Bottle style
Price		



④ Aromatic spectrum:



References:

- ❖ Melba Allen, Lecturer ISC-Paris, Sommelier Consultant, International Communications OENO COM-France
- ❖ Michel Buillard, Enologist, Lecturer DISTECH-University de Nancy, Strasbourg, Director OENO-COM-France
- ❖ Ray Johnson
- ❖ Aroma Wheel, UC Davis, California
- ❖ Evaluation Sensorielle, Manuel Methodologique, SSHA, Florence Sztrygler-ISHA
- ❖ Les Vins de France et du Monde, Edition Nathan