

Physics & Winemaking

Piergiorgio Cerello
cerello@to.infn.it

2005: why winemaking?



...it had started in 2002



... with the first harvest in 2004



S. Francesco - Gattinara

... then in 2006 ...

That's where being a physicist comes in...

how do we do that?

why do we do that?

“it's always been like that”

WHAT???

On top of that...

“the best thing you can do for ALICE
now is to stay home and babysit the kids”

... until 2011



Winemaking is ...

- Multidisciplinary
 - multistage
 - multiparametric
- Exciting and challenging for an experimental physicist...
- ... and contrary to software development, the result is (could be) tasteful 😊

Winemaking

- A physicist in the world of
 - chemistry
 - it's everywhere
 - from grape destemming and crushing to maceration to ageing and wine stabilization
 - microbiology
 - it's also everywhere
 - yeasts (*Saccharomyces cerevisiae*) are crucial to the alcoholic fermentation
 - bacteria (*Oenococcus oeni*) drive the malolactic fermentation

Winemaking

- How about physics?
 - temperature is a key parameter to optimize chemical and microbiological processes
 - humidity is important for ageing
 - must concentration is based on physical/chemical processes
 - pre-bottling filtration is a physical process
 - spectrophotometry and mass spectrometry are widely used in the analysis of wines

Winemaking

- How about physics?

the advantage of a physicist lies in the familiarity with the experimental method

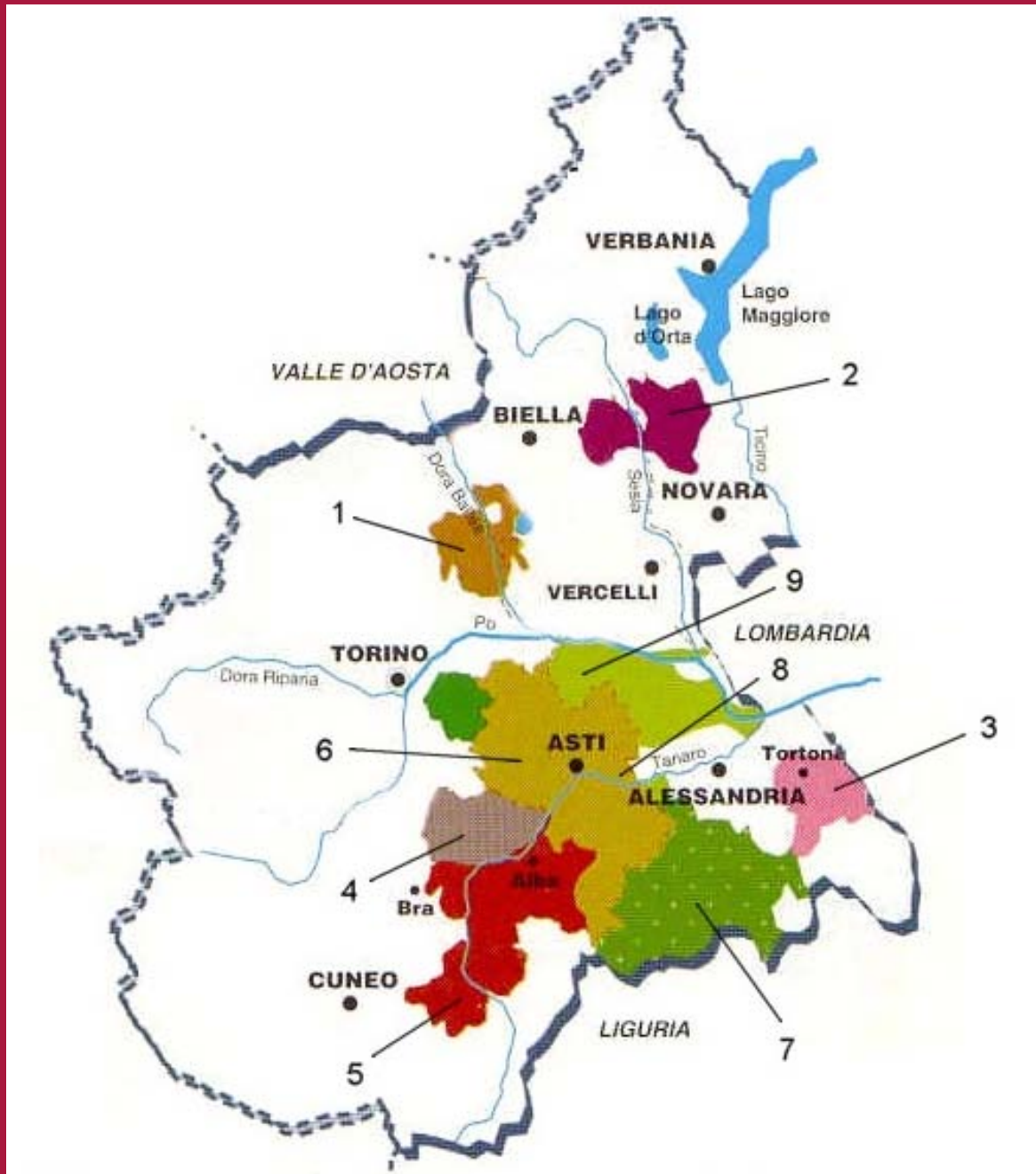
trial, error and feedback...

- identification of critical points to the process improvement
- assessment of the relative importance of different processes to the outcome

Vineyards ... and cellar



Piedmont and wine



1 – Carema

2 – Alto Piemonte
Gattinara
Ghemme

3 – Colli Tortonesi

4 – Roero

5 – Langhe
Chardonnay
Sauvignon
Riesling
Pinot Noir
Barbera
Barbaresco
Barolo

6-7-8-9 Monferrato

Moscato
Barbera

... white wine?

LANGHE DOC BIANCO 2014

TYPE: DRY WHITE WINE

AREA: LANGHE - MONFORTE D'ALBA (CN)

VARIETY: ARNEIS 50%, SAUVIGNON BLANC 30%,
CHARDONNAY 20%.

Wine obtained from our estate grapes.

CHARACTERISTICS OF THE VINEYARD

SITE: Monforte d'Alba

SURFACE: 0.4 hectares

ALTITUDE : about 420 meter

EXPOSURE: East

SOIL: Elveziano - clayey calcareous

CANOPY SYSTEM: Guyot VSP

DENSITY: 5000 plants/hectare

AGE OF THE VINEYARD: 17 years

HAND PICKED

2014 production: 9600 bottles 0.75 L

Alcohol: 13.18 % by vol.

Total acidity: -

Net dry extract: -

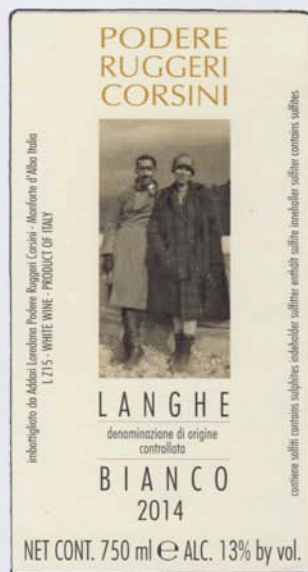
Total sulphurs dioxide: -

ENOLOGY

Vinification starts after a manual harvest in crates, with immediate pressing. After cold clarification, temperature-controlled fermentation takes place at roughly 13/14 degrees followed by decanting. After four months of standing in stainless-steel vats, the wine is then bottled in February 2015.

FOOD PAIRINGS

Langhe DOC Bianco is a wine of impressive structure, that can be aged for up to two years. It is best served at a temperature between eight and ten degrees. It can be drunk as an aperitif, but is at its best paired with starters, first courses and fish-based dishes.



Langhe Bianco

2015

info@ruggericorsini.com



PODERE
RUGGERI
CORSINI

GRAPE VARIETY

100% White Riesling

GRAPE VARIETY

The pioneer of Riesling is Aldo Vaira. Fascinated by this variety since his university times, Aldo started studying and grafting the first vines in Langa. This is how Pètracine was born, a wine whose name evokes *roots on the stones*. A rich body, where mineral acidity from the rigorous German rootstocks, blend with the volume and pronounced creaminess from the Alsatian stocks. It almost seems like hearing the German affirmative *Ja* mix together with the musical French *Oui*.

VINEYARDS

The first vineyard dedicated to Riesling was Fossati, located at the very highest part of the Comune of Barolo and facing the morning sun. The soil, has a singular gravelly-sandy composition. The second vineyard, facing north-east, can be found in the well-known region Bertone (in the Comune of Sinio), a lower hillside, distinctive for its calcareous and homogenous soil.

FARMING

Vajra has always believed in sustainable farming and keeps the turf natural and green in the vineyard. No irrigation is used while thinning is decided according to the vintage.

HARVEST AND WINEMAKING

Harvesting of Riesling occurs in the first half of September and proceeds in different steps for two or three weeks. The transporting of the grapes is done in small crates to keep the grapes intact. The careful selection of grape clusters starts in the vineyard and is carried out with the same attention all the way to the cellar.

Soft pressing and brief stabilization is carried out before fermentation which lasts approximately 15-20 days. The Riesling continues its aging in steel tanks and, in the Spring following the Harvest, it is time for bottling.

TASTING NOTES

Showing a delicate greenish tint when young, it leaves space for straw yellow hues as it develops. Yellow peaches and apricots in its youth, with delicate floral and citrus notes at its mid-life while showing minerality and flint stone with age. On the palate it is harmonious and geometrically precise, almost austere, surprises you with its refreshing and balanced acidity which, from the time of bottling, accompanies the wine throughout its lifetime.

“

Dad was the pioneer of Riesling in Piemonte. His intuition came about at the end of the 70's and materialized in 1985. This story about Riesling is just one of the many examples which demonstrates my dad's curiosity and passion: extremely respectful of our territory and traditions, but open to the world. Luckily for my brothers and me, we have also fallen in love with this stunning variety but are, moreover, endlessly surprised by the love our father has for his work.

– Francesca Vaira –

Riesling Langhe

2015

info@gdvajra.it



G.D.VAJRA

... a land of red wines



GRAPE VARIETY

100% Pinot Noir

DESCRIPTION

We have learned through experience that, when one door closes another one opens. From the time we were forbidden to plant Nebbiolo at the high altitude of 497 meters, to the idea of challenging ourselves with a delicate variety like Pinot Nero. This is how PNQ497 was born: an homage to Pinot, with a Piemontese flair.

VINEYARD

From the highest part of Bricco delle Viole, *Bricco di Vergne*, straddles the two Communes of Barolo and La Morra. From here your eyes can span from Alta Langa (to the East) all the way to Monviso (to the West), while your thoughts drift off far and beyond the Alps.

FARMING

Vajra has always believed in sustainable farming and keeps the turf natural and green in the vineyard. No irrigation is used while thinning is decided according to the vintage.

HARVEST AND WINEMAKING

Determining the optimal moment for the harvesting of Pinot Nero comes in the month of September and it is, together with the vinification, one of those moments when we physically push ourselves to the limits.

Pinot Nero is, in fact, an extremely delicate grape: one day early and the grapes are not ripe enough and one day later it could already be too late. The same happens during fermentation when the wine can go from being sweet to overly bitter in a heartbeat and the winery worker's time is always too little.

Eighteen months in oak barrels establish its color, soften the tannins and make us feel, in any case, minute compared to the forces of nature.

TASTING NOTES

Red with vibrant reflections in its young age, a rich array of aromas where red fruits, hay, flowers and liquorice are accompanied by minerality.

“

When I started making Pinot Nero I discovered a whole new mimicry seen from a boy's eyes when I used to “help” my grandfather in the cellar. A valuable experience that, from Pinot Nero, I carried over to my other wines.

– Aldo Vajra –

Pinot Noir

2013

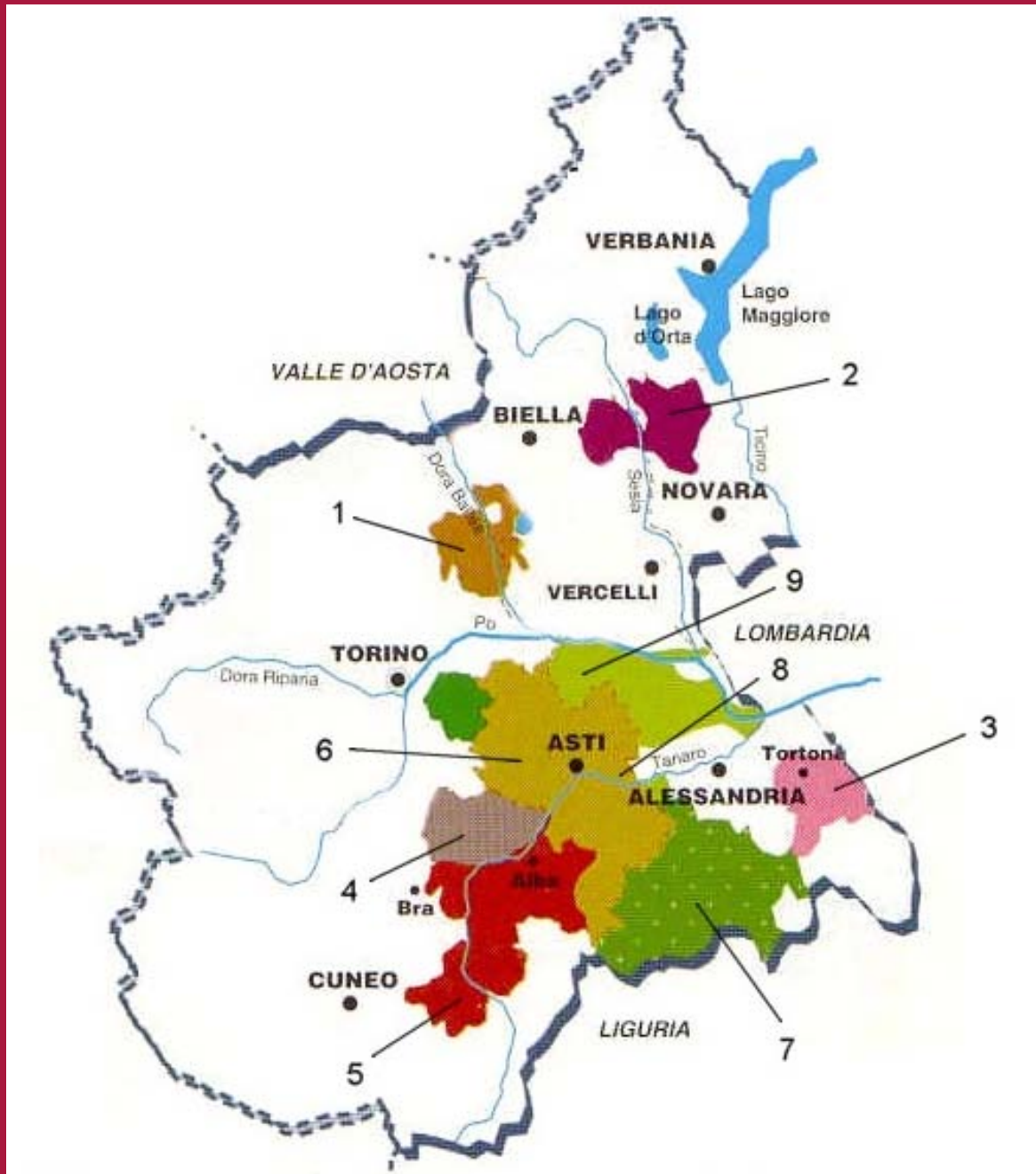
info@gdvajra.it



G.D.VAJRA

... the land of Nebbiolo

Piedmont and wine



1 – Carema

2 – Alto Piemonte
Gattinara
Ghemme

3 – Colli Tortonesi

4 – Roero

5 – Langhe

Riesling
Pinot Noir
Barbera
Barbaresco
Barolo

6-7-8-9 Monferrato

Moscato
Barbera

Location: S. Francesco hills,
Gattinara

Grape Variety: 100% Nebbiolo

Soil: Acidic clay

Exposure: south-west

Altitude: 350 asl

Size: 0.16 ha

Density: 4000/ha

Bottles/year: 600

Harvest: hand-picked, october

Maceration: about 2 weeks in
stainless steel

Ageing: 6 months in steel on its
lees, 24 months in oak barrels, at
least 6 months in the bottle

Gattinara

2011

stradina@legalmail.it



CORSINI 2011 BAROLO DOCG BUSSIA

TYPE: DRY RED WINE
AREA: BAROLO Langhe
VARIETY: NEBBIOLO 100%
Wine obtained from our estate *Nebbiolo* grapes.

CHARACTERISTICS OF THE VINEYARD

SITE: Monforte d'Alba
SURFACE: 1.1 hectares
ALTITUDE: about 420/450 meter
EXPOSURE: South-West
SOIL: Elveziano - clayey calcareous
CANOPY SYSTEM: Guyot VSP
DENSITY: 4500 plants/hectare
AGE OF THE VINEYARD: 30 - 50 years
HAND PICKED

2011 production: 5760 bottles 0.75 L
400 bottles 0.375 L
100 Magnum 1.5 L
25 Magnum 3 L

Alcohol: 15.14 % by vol.
Total acidity: 6.07 grams per liter
Net dry extract: 30.7 grams per liter
Total sulphurs dioxide: 66 mg/L

ENOLOGY

Vinification starts after a manual harvest in crates with immediate stalk removal, followed by four pump overs a day for the first week and two pump overs a day during the second week. Maceration lasts 15-18 days. After racking, decanting and malolactic fermentation occurs, the wine is then put to stand in a mix of new, 1 and 2 year old *French barriques* and in *Slavonian Oak* barrels for 30 months. Bottled in January 2015. Bottle aged 6 months prior to release.

TASTING NOTE

Medium-deep ruby red, with garnet to orange overtones. There should be an exhilarating rush of freshness on the nose, followed immediately by warming broader elements which can include candied cherries, bitter cherries, plums, strawberries and raspberries. There are also darker tones of chocolate, hazelnuts and liquorice, with herbs, cinnamon and vanilla as well.

FOOD PAIRINGS

Barolo Bussia Corsini DOCG is a wine that is suitable for ageing (fifteen or more years). It is best served at a temperature of eighteen degrees and it's ideally paired with meat (game as wild boar) and with intensely flavoured dishes based on mature and spicy cheeses.



Barolo

2012

info@ruggericorsini.com



PODERE
RUGGERI
CORSINI

... and a sweet straw wine

Sol



Moscato passito

2015

e.cerruti@inwind.it

Variety: Moscato 100%

Region: Piemonte

Alcool: 15,0%

Vineyard: Manure as a
natural fertilizer

Ageing: Barrique

Match with: Dessert

