

Modern minimal intervention winemaking

- When? 1960s
 - Why? Change of paradigm
 - Supermarkets
 - 80% of bottled wine in France
 - 300 M bottles/year
 - 250 labels for 85% of sales
 - Modern Enology (Ribéreau Gayon/Peynaud)
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Goals

- Survival of traditional, independent and artisan production
 - Wines with strong personality
 - Showing Terroir (sense of the place, history, culture, tradition), vintage, grape(s)
 - Able to survive mainstream market dictatorship

Chauvet : Oenology helped improving mass market processed wines but has never succeeded to reach the excellence of the very best artisan wines

☰ *Philosophy*

- Grapes first (no correction)
- Native micro-organisms responsible for uniqueness of aromatic and structural profile (« fermentation aromatique »)
- No preventive manipulation outside terroir traditions
- No preventive addition

Chauvet, as a winemaker and microbiologist, focused on quantitative and qualitative monitoring of microbes involved in fermentations
This is the most useful and powerful tool for the minimalist winemaker

Control points : looking for better native microbes and wine ecosystem (YAN, ...)

- Staff
 - Motivations, Dedication
 - Soils
 - Microbiotope
 - Soil management (weeding, inputs)
 - Vines
 - Grafting, pruning, canopy management
 - Green harvest, yields
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Finally ..., Enology

- Grapes
 - Harvest/Sorting
 - Ripeness $\backslash(^o^)/$
 - pH
 - Total acidity, malic acid
 - YAN

Grapes = Landscape
Minimalist winemaker = Shepherd of microbes

And now..., winemaking !

Minimal winemaking according to Chauvet ? Controlling the race between wanted, unwanted yeasts and bacterias over sugars (piqûre lactique) in order to avoid taints (high VA, mouse, 4EP,...)

- Monitoring of Fermentations
 - Fermentable Sugars / Alcohol
 - Malic Acid / Lactic Acid
 - D-Lactic as a warning
 - Yeast and bacteria populations
 - Environment(Temperature,TA, pH)
 - Numeration
 - Identification (yeasts)
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Optical microscopy : Goals

- Yeast
 - Numeration : counting cells (Thomas, Malassez, Neubauer...)
 - Identification (Kloeckera, Candida, Cerevisiae, Brettanomyces,...)
- Bacterias
 - Evaluation in conjunction with slowing AF, apparition of D-Lactic, residual malic acid



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Optical microscopy : tools

- Optical microscope (mini x500)
- UV lightening
- Phase contrast
- Counting Cell
- Dead/Alive cell dyes



Risk of minimal intervention winemaking

- Over 1000 native fermentations monitored
 - 13% with slow/deviant AF
 - 25% in 1999, 6% in 2017
 - 90% of problematic AF in 2017 in new low intervention wineries
 - 2% ended with defective wine
 - 90% mouse taint
 - 25% high VA
 - 5% 4EP
 - 1 defective wine in 2017, 0 in 2014, 2015 and 2016
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Risk of minimal intervention winemaking

- 95% of defective had difficult AF with important lactic bacteria populations without malic acid left
- In the last 5 vintages, 12 out of 310 had slow/problematic AF, 3 wines ended defective, 2 mousy, 1 high VA, none with 4EP.

Jules Chauvet : a artisan vigneron.ne should learn to accept her/his wines as they are, and stop trying to make them as she/he wants them to be