VINVENTIONS

WQS
Polyscan

How to use Polyscan to assess grape maturity

1- Maturity profile

a. Berries sampling

In order to assess grape maturity profile with the Polyscan, we recommend sampling weekly using OIV sampling procedure. The first sample should take place just after the end of veraison.

- Always aample in the same row
- Pick up 200 berries on both side of the row, at different positions on the bunch

b. Measuring

i. Prepare Polyscan

- Start Polyscan
- Insert a new strip in Polyscan
- Select " maturity control"
- Select the color "red or white"
- Select the variety in the list or enter a new one if needed
- Enter "Series Name": create a new series when starting follow up on a plot or select the name of the vine plot by typing its first letters
- "Sample name" please enter current date

⇨ **Polyscan is now ready for measurement**

ii. Sample preparation

- Make all analysis needed before crushing (berries count, weight…)
- Crush the berries in a plastic bag

### iii. Launching a measurement

- <u>IMMEDIATELY</u> after crushing
- Drop the sample on the strip, on the black electrodes that are inside the white square
- Immediately launch the measurement by pressing "start"

c. Data interpretations

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To assess maturity profile we are looking for a minimum value of PhenOx: the lowest value of PhenOx. This minimum value occurs generally at the same time as berry sugar loading stop. This phenomenon is a key indicator for berry ripening according to A.Deloire works.

If the sugar concentration at this date is below 19.5 °Brix, the ripening can be considered as "blocked", this could be due to imbalance in the vine (excess of fruit, water stress…).

If the sugar concentration at this date is above 19.5 °Brix, after the date of minimum of PhenOx there is a berry aromatic sequence (for example for red variety : red fruit, spicy, black fruit, the date of each "style": is estimated with a number of days after minimum of PhenOx and depends on the grape variety).
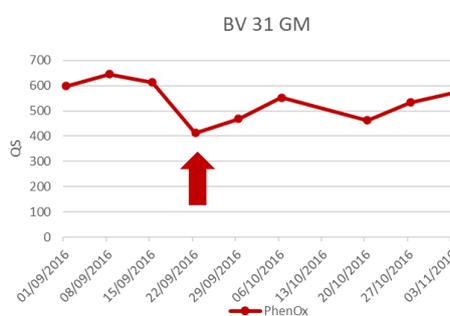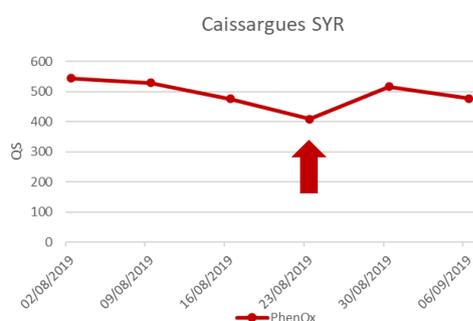
2- Polyphenolic profile characterization

a. Berries sampling (red grapes)

This analysis could be performed every week during ripening or just before maturity to sort the plots for harvest.

- Always aample in the same row
- Pick up 200 berries on both side of the row, at different positions on the bunch

This type of analysis can be used to sort plots regarding their level of polyphenol with EasyOx (easily oxidizable compounds: include anthocyanins) and/or PhenOx (total oxidizable compounds: include tannins).

b. Measuring

Please follow the sample preparation below before any analysis:

- Crush berries for 2 minutes in a blender
- Sample exactly 50 g from the crushed obtained and add 100 mL of extraction solvent

Extraction solvent must be prepared as follow: For 10L: add to 8.5 liters of distilled water 1.5 liter of ethanol 96% and adjust pH to 3 with hydrochloric acid 12N.

- The diluted crushed must be stirred few second every15 minutes for 1 hour at room temperature. The obtained homogenate can thus be settle for 30 minutes
- After this step, juice can be dropped on the electrode
- Launch measurement

c. Data example – Tempranillo 2019 Rioja
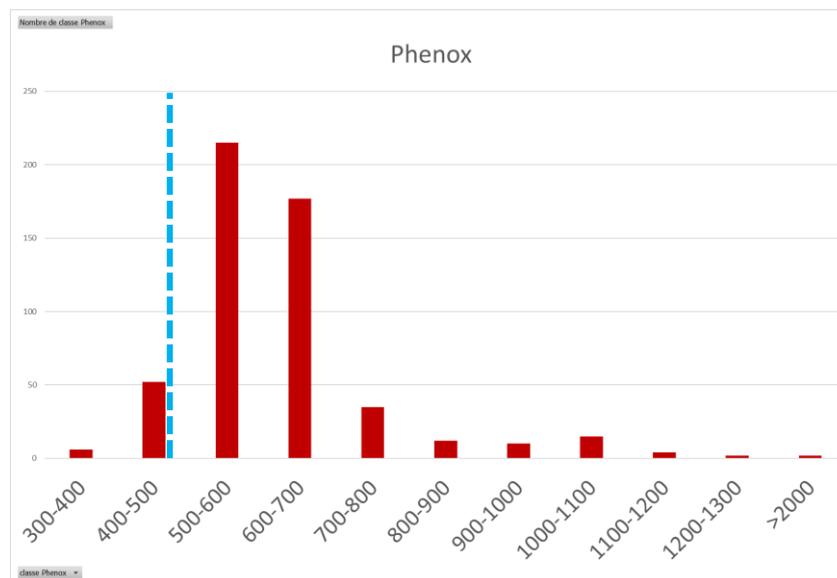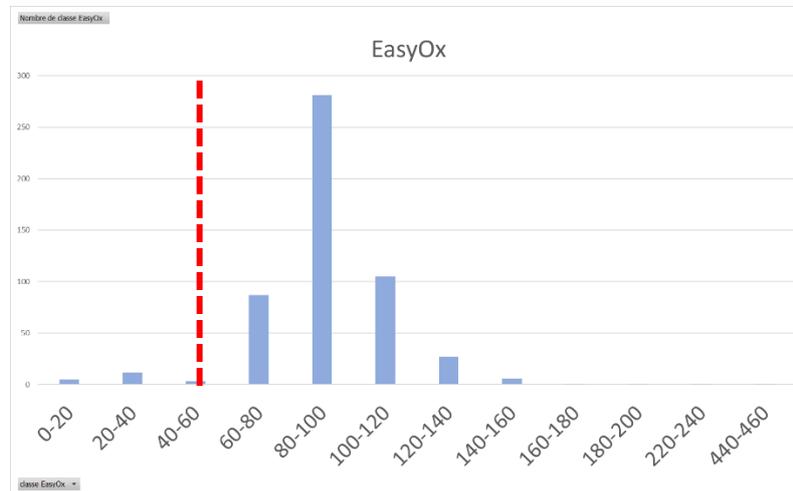
Using EasyOx and PhenOx we can sort the plots to adapt winemaking process.,For example, the 4 following categories can be distinguished:

- low EasyOx & low PhenOx
- high EasyOx & low PhenOx
- low EasyOx & high PhenOx
- high EasyOx & high PhenOx

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