

Sampling berries or clusters?  
Prof Alain Deloire, [alain.deloire@supagro.fr](mailto:alain.deloire@supagro.fr)  
07 August 2018

Loose or compact bunches?  
Vineyard homogeneity/heterogeneity?  
Cluster homogeneity/heterogeneity?

What to sample: berries or clusters?

Preliminary results on berry sugar spatial distribution for various #grapevine varieties (cépages) in sugar concentration expressed in Brix values.

The little yellow sticks indicate the position of the measured berries on the cluster and the Brix value of each measured berries.

The clusters are from Montpellier SupAgro experimental vineyard, so from same soil, mesoclimate and cultural practices as fertirrigation.

Measurements done on clusters of (06 August 2018; table 1):

- Ugni Blanc (figure 1)
- Tempranillo (figure 2)
- Shiraz (figure 3)
- Cabernet-Sauvignon (figure 4)

Measurements done on clusters of (08 August 2018; table 2):

- Chasselas
- Chenin Blanc
- Sultanine
- Dabouki
- Dolcetto
- Touriga National

The results showed for the four observed varieties:

- no real gradient on a cluster
- no real logical about berry sugar concentration or Brix (interaction between berry fresh mass & sugar per berry) spatial distribution on a cluster
- variability of berry sugar concentration between berries within cluster

Take home message:

This is confirming the interest of sampling bunches when possible to follow berries/clusters ripening, irrespective or respective of the heterogeneity/homogeneity of vineyards. Sampling bunches is an accurate and less time consuming method from a vineyard view point (table 1). Then up to the operator to crush the clusters or, in the laboratory, to sample berries from those sampled bunches!

Obviously sampling berries or clusters will depend on:

- the measurement goals (what to achieve)!
- research-experimentation or practical purposes
- labor and cost involved
- vineyard homogeneity/heterogeneity
- vineyard yield and area to consider/follow
- bunches' compactness

Sampling berries or clusters?

Prof Alain Deloire, [alain.deloire@supagro.fr](mailto:alain.deloire@supagro.fr)

07 August 2018

- others?

*Table 1: Single clusters of Ugni Blanc, Tempranillo, Syrah and Cabernet-Sauvignon from SupAgro experimental vineyard. Comparison between average Brix values of 10-14 berries per cluster and Brix values of the same crushed clusters (less the 10-14 sampled berries). The results regarding the Brix values showed no difference between berry sampling and crushing the all bunch. For compact bunches it is recommended to sample clusters (an average of 10 to 20 clusters per sites).*

measured berry number/cluster	Ugni Blanc	Tempranillo	Syrah	Cabernet-Sauvignon
1	18,2	17,8	17,4	20,6
2	18	17,8	17,8	19,4
3	17,6	17,2	17	18,8
4	17,4	18	18,6	19,6
5	17,6	18,2	17,6	18,4
5	18,6	21	16,8	19,6
7	18	17,6	17,2	20,4
8	17,4	16,6	16	20
9	17,4	16,2	16,4	18,2
10	18,6	15,8	16,2	20,2
11				18,2
12				19,4
13				19,8
14				19,4
<b>Average</b>	<b>17,9</b>	<b>17,6</b>	<b>17,1</b>	<b>19,4</b>
<b>Full cluster (crushed)</b>	<b>18,2</b>	<b>17</b>	<b>17,2</b>	<b>19,4</b>

*Table 2: Same than table 1 + Chasselas, Chenin Blanc, Sultanine, Dabouki, Dolcetto and Touriga National. Comparison between average Brix values of 10-14 berries per cluster and Brix values of the same clusters that have been crushed to measure the Brix values (less the 10-14 sampled berries per cluster). The results regarding the Brix values showed no difference between berry sampling and crushing the all bunch, except for Dolcetto. Getting the same trends from single bunches of ten cultivars is showing the relevance of the method and the results.*

measured berry number/cluster	Ugni Blanc	Chasselas	Chenin Blanc	Sultanine	Dabouki	Tempranillo	Syrah	Cabernet-Sauvignon	Dolcetto	Touriga National
1	18,2	18,4	20,6	22	14	17,8	17,4	20,6	17,4	13,4
2	18	18,6	20,2	20,6	14	17,8	17,8	19,4	18,4	13
3	17,6	18,2	17,8	22,6	12	17,2	17	18,8	20,6	14,2
4	17,4	19,4	24,2	21,6	13,6	18	18,6	19,6	16	13,4
5	17,6	19	19,2	21,2	12,4	18,2	17,6	18,4	18,2	15
5	18,6	17,8	17,4	20,2	14	21	16,8	19,6	17,6	12,6
7	18	19	18,2	20,6	13,2	17,6	17,2	20,4	17	12,8
8	17,4	18,8	17,6	21,4	13,4	16,6	16	20	18	12,6
9	17,4	17,2	19,4	20,2	11,8	16,2	16,4	18,2	18,2	14
10	18,6	17,4	17,8	21,2	13	15,8	16,2	20,2	19,2	13,8
11		18,2	17,8	21,8	12			18,2	18	13,4
12		17,6	18,6	21,6	11,6			19,4	18,6	13,6
13			18,2	21,8				19,8		
14			18,4	21,6				19,4		
<b>Average</b>	<b>17,9</b>	<b>18,3</b>	<b>19,0</b>	<b>21,3</b>	<b>12,9</b>	<b>17,6</b>	<b>17,1</b>	<b>19,4</b>	<b>18,1</b>	<b>13,5</b>
<b>Full cluster (crushed)</b>	<b>18,2</b>	<b>18</b>	<b>19</b>	<b>20,8</b>	<b>13</b>	<b>17</b>	<b>17,2</b>	<b>19,4</b>	<b>16,8</b>	<b>12,8</b>

Sampling berries or clusters?

Prof Alain Deloire, [alain.deloire@supagro.fr](mailto:alain.deloire@supagro.fr)

07 August 2018



Figure 1: Spatial distribution within a cluster of Ugni Blanc of berry sugar concentration expressed in Brix values (average Brix of 10 berries: 17,9; crushed bunch: 18,2).



Figure 2: Spatial distribution within a cluster of Tempranillo of berry sugar concentration expressed in Brix values (average Brix of 10 berries: 17,6; crushed bunch: 17).





Figure 3: Spatial distribution within a cluster of Shiraz of berry sugar concentration expressed in Brix values (average Brix of 10 berries: 17,1; crushed bunch: 17,2).

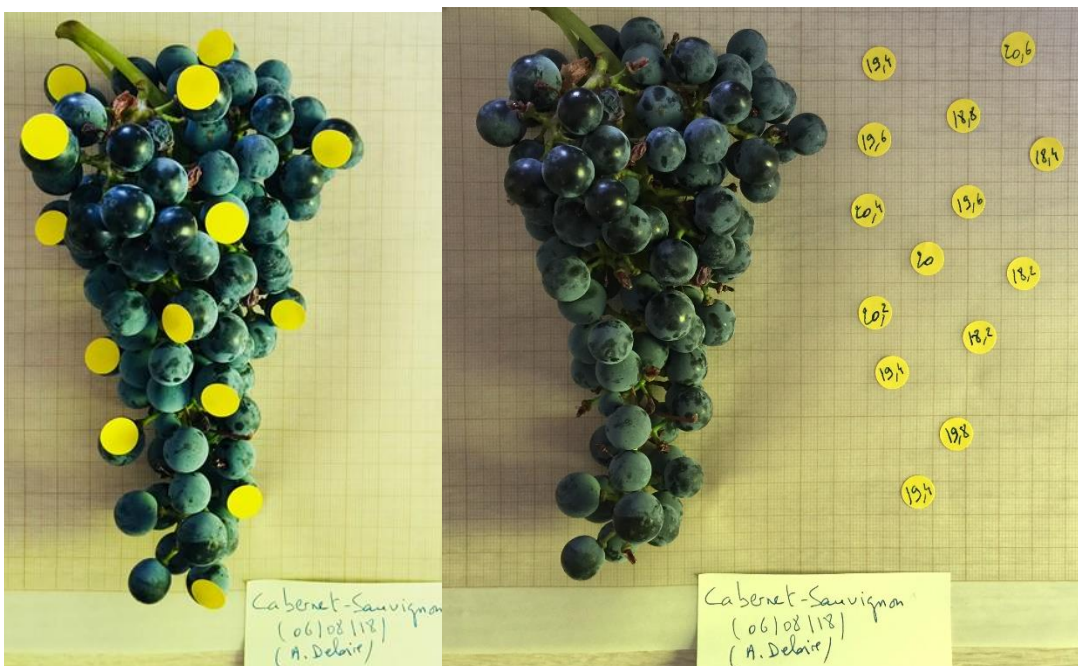


Figure 4: Spatial distribution within a cluster of Cabernet-Sauvignon berry sugar concentration expressed in Brix values (average Brix of 10 berries: 19,4; crushed bunch: 19,4).