

The 2015 vintage in Bordeaux

Dr. Laurence GENY and Professor Denis DUBOURDIEU

*Institute of Vine and Wine Sciences of Bordeaux University,
Oenological Research Unit*

in conjunction with

E. GUITTARD*, N. DANEDE*, C. BAZ*, L. RIQUIER*, A. OZOWSKI* and Ph. PIERI**

**Institute of Vine and Wine Sciences of Bordeaux University,
Oenological Research Unit*

*** Institute of Vine and Wine Sciences of Bordeaux University,
UMR 1789 Functional Ecophysiology and Genomics of the Vine, INRA (the French National
Institute of Agricultural Research)*

Let us not deny ourselves the pleasure of declaring 2015 an outstanding vintage in terms of both quality and quantity. In fact, all five conditions necessary for a great red wine vintage in Bordeaux were perfectly aligned. Let us go over these conditions. A great year calls for:

1) and (2) – Early and relatively quick flowering and fruit-set during weather that is sufficiently warm and dry to ensure pollination and predispose towards simultaneous ripening,

(3) The gradual onset of water stress thanks to a warm, dry month of July in order to slow down and then put a definitive stop to vine growth during *véraison* (colour change), If fine weather does not come until the end of ripening, water stress is more beneficial to the Cabernets than to Merlot.

(4) Full ripening of the various grape varieties thanks to dry and warm (but not excessively so) weather in the months of August and September,

(5) Fine (dry and medium-warm) weather during the harvest making it possible to pick at optimum ripeness without running the risk of dilution or rot.

Successful dry white wines call for sweet fruity grapes in good condition, with sufficient acidity and skins that are not very tannic. This balance is easy to obtain on suitable terroirs if summer is temperate and without excessive heat or drought conditions after *véraison*. This was the case in August 2015. Heat was moderate and rainfall above average, but not to the extent that this restarted vegetative growth.

The quality of noble rot is obviously what makes a great vintage in Sauternes and Barsac. Botrytis appeared early in 2015 and over two thirds of the crop was picked by the end of September. The harvest was over by mid-October.

An unremarkable winter (wet the first two months, then cold between mid-January and mid-February) followed by a dry, warm spring for nearly perfect flowering

As opposed to the previous year's winter, one of the mildest in the past thirty years, the winter of 2014-2015 was not out of the ordinary. Temperatures were relatively mild until mid-January, except for a cold spell in late December. Winter weather set in for a month, between the 17th of January and the 14th of February, with 14 days of frost. The average temperature was close to normal – slightly warmer in January (+0.9°C), but colder in February (-0.6°C) (Figure 1, Table I).

Accumulated precipitation was slightly higher than usual i.e. 10% above average (Figure 2, Tableau I).

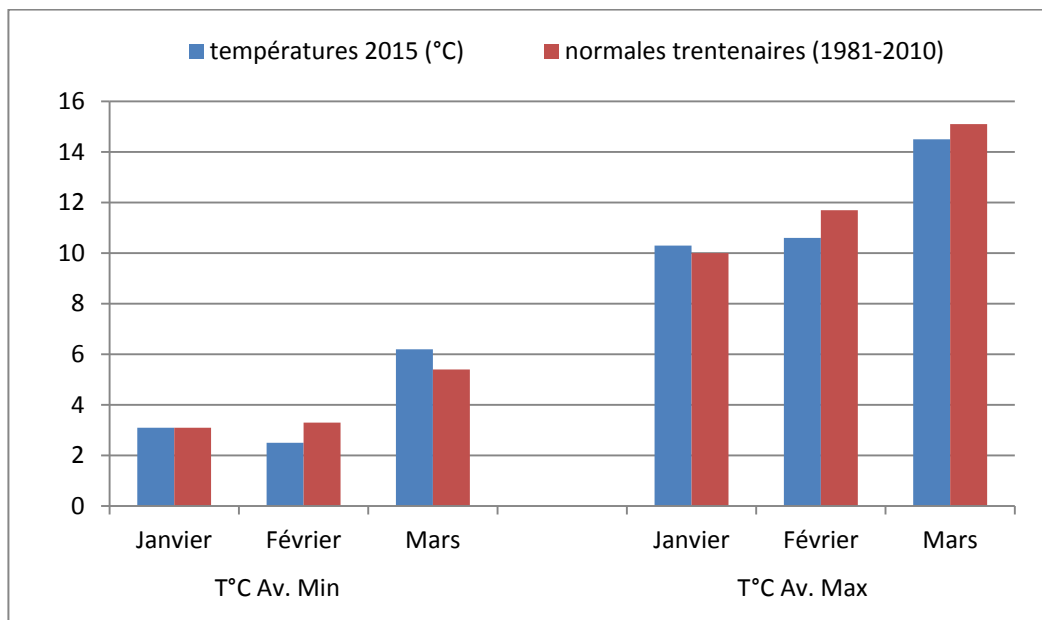


Figure 1
Minimum and maximum temperatures in winter 2015
Data from Mérignac (Météo France)

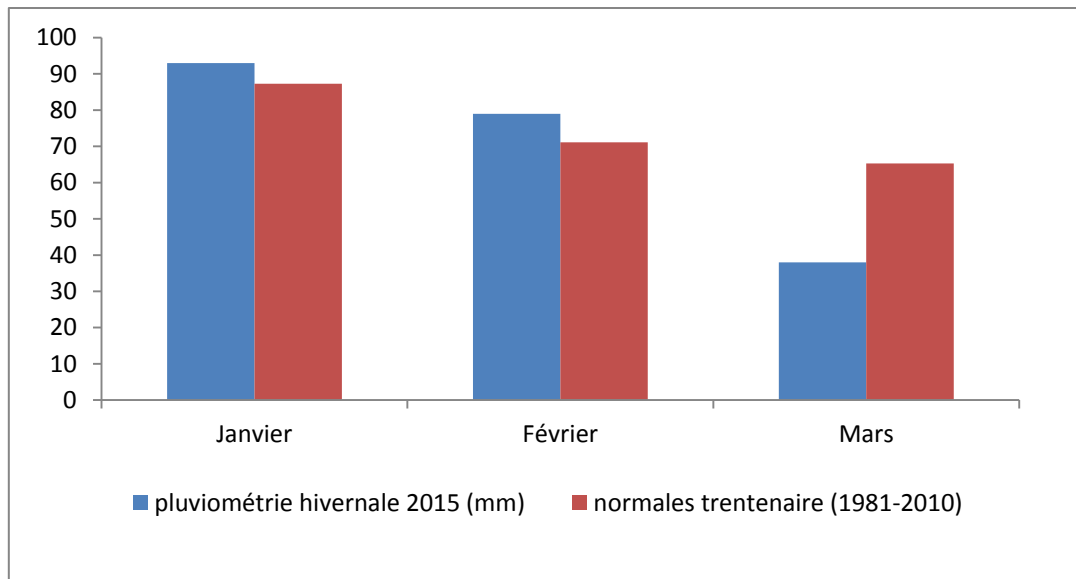


Figure 2
Cumulative winter rainfall (mm)
Data from Mérignac (Météo France)

Table I
Weather indicators for 2015: rainfall and temperature (compared to the 1981-2010 average)
and hours of sunshine (compared with the 1991-2010 average)
Data from Mérignac (Météo France)

	Hours of sunshine (h)		Precipitation (mm)		T°C average minimum (°C)		T°C. average maximum (°C)	
	Average 1991-2010		Average 1981-2010		Average 1981-2010		Average 1981-2010	
	2015		2015		2015		2015	
January	75	95	93	87	3.1	3.1	10.3	10.0
February	113	115	79	71	2.5	3.3	10.6	11.7
March	107	170	38	65	6.2	5.4	14.5	15.1
April	197	182	27	78	9	7.4	20	17.3
May	201	217	33	80	11.6	11.0	21.3	21.2
June	300	239	43	62	14.7	14.1	27.3	24.5
July	281	249	35	50	17	15.8	29.1	26.9
August	251	241	87	56	16.3	15.7	27.9	21.7
September	204	203	35	84	12.2	12.9	22.7	24.0
October	169	147	52	93	9.4	10.4	18.4	19.4

A series of showers upset the last ten days of February. March was less rainy than usual, as well as more overcast (-63 hours of sunshine) and cold, with an average maximum temperature 0.6°C less than normal (Figures 1 and 2; Table I).

These conditions were not conducive to early bud break like in 2014. The first buds appeared on the 9th of April, and full bud break was observed in our reference vineyards on the 15th of that month for Merlot and the 19th for Cabernet Sauvignon, i.e. 17 days later than 2014 and 10 days later than the 10-year average.

However, this slight delay was quickly compensated by very fine weather in April, one of the 3 or 4 warmest months of April since 1950. Average temperatures were most often 2°C warmer than usual, but peaks of +10°C were reached between the 13th and the 15th, with summerlike readings of 28°C on the 14th and 15th. Sunshine was generous and rainfall far lower than usual (-63% compared to an average year) (Table 1). These conditions contributed to regular, relatively quick bud break entailing even early growth.

May was a month of sharp contrasts, with alternating hot and cool periods (Figure 3) that enabled the shoots to develop undisturbed. The first flowers appeared in late May, in keeping with the average of the past 10 years (Figure 4).

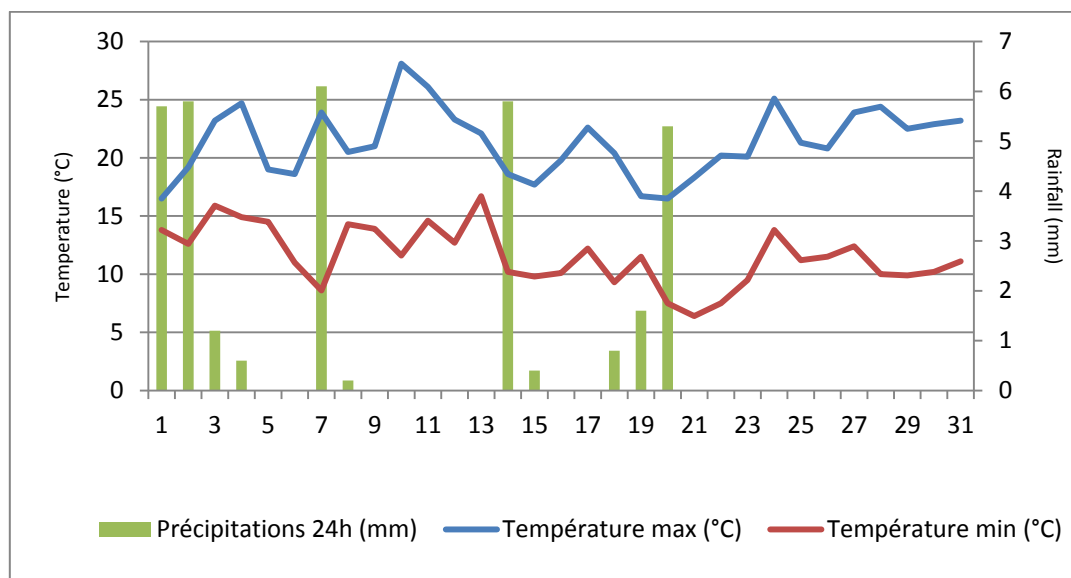


Figure 3
Daily variations in temperature and precipitation in May 2015
Data from Mérignac (Météo France)

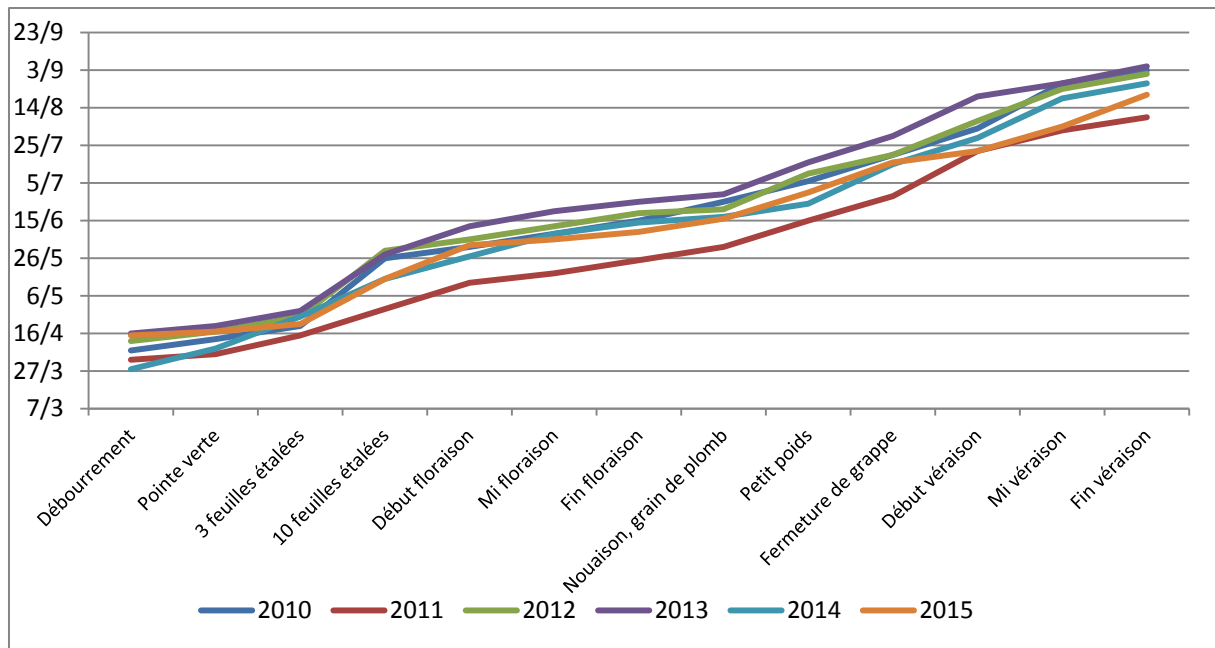


Figure 4

*Development of phenological ripeness in 2015 compared with 2014, 2013, 2012, 2011, and 2010
Data from SRAL and ISVV*

The month of June was truly summerlike, the warmest in the Aquitaine region for over a century after June 2005, 2003, and 1976: +2.3°C on average compared to normal minimum temperatures

+4.1°C compared to average maximum temperatures June 2015 was very sunny (the sunniest weather in 25 years, 24% greater than average) – with only 5 days of rain from the 9th to the 16th. **Ideal weather to meet the first two conditions for a good vintage: early, quick, and even flowering and fruit set.**

The estimated average date of mid-flowering in our reference vineyards was the 5th of June (the 4th for Merlot and the 7th for the Cabernets), i.e. not significantly different from the 20 year average (Table II)

Flowering was quick and the ensuing fruit set (observed on the 10th of June) also went well, which set the stage for homogeneous ripening.

The weather remained quite warm and sunny the last few days of June. This sped up growth of the berries, which reached "pea size" by the end of the month (Figures 4 and 5).

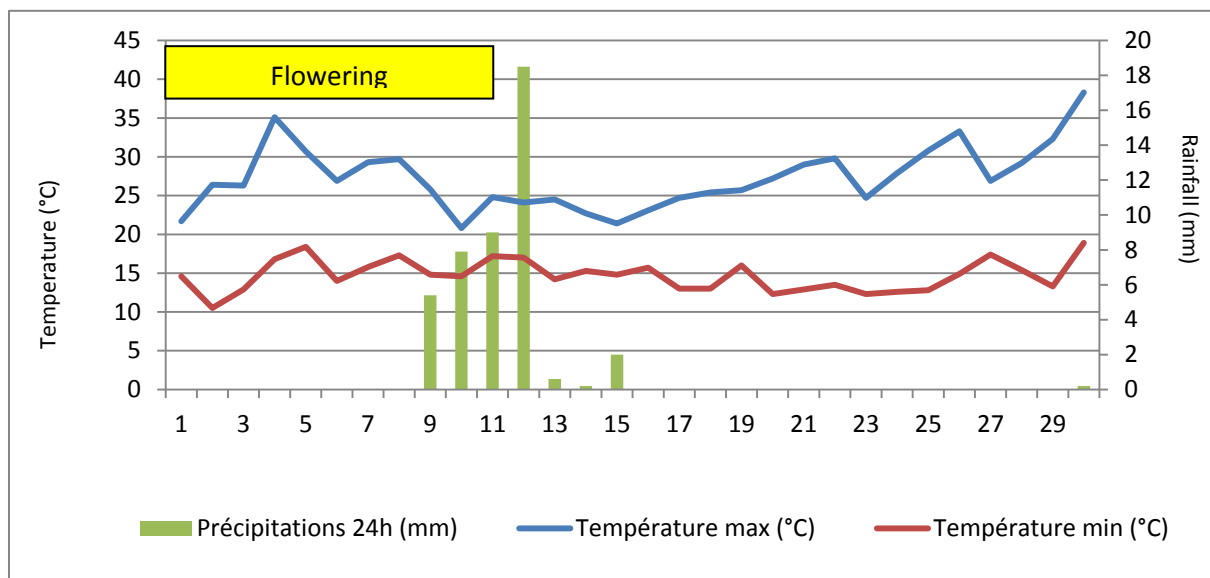


Figure 5
Daily variations in temperature and precipitation in May 2015
Data from Mérignac (Météo France)

Dry, hot early summer weather between fruit set and véraison (colour change) followed by a wonderful month of August that launched ripening

The remarkably warm temperatures in June continued into July. This was one of the 4 hottest months of July in the Aquitaine region for over a century, after July 2006, 2013, and 1983. The average maximum temperature that month was 29.1°C, i.e. 2°C greater than the norm, with 12 days above 30°C and a record 40.8°C in Parempuyre (southern Médoc).

This very hot weather was accompanied by water stress that became critical on certain terroirs (such as ones with gravel soil).

With only 4 rainy days (compared to an average of 6 to 8), cumulative precipitation in July amounted to 35 mm, but without any significant rainfall before the 20th. July 2015 was the 5th month in a row with a water deficit.

The drought conditions and high temperatures in late June and July slowed down phenological maturity. **A halt to vegetative growth at the beginning of véraison: the 3rd condition for a good red wine vintage**

The water balance showed an early start to hydric stress. This was less brutal than in 2011, comparable to 2003, and close to 2010 (Figure 6). On certain shallow soils, initial signs of interrupted physiological maturity were observed.

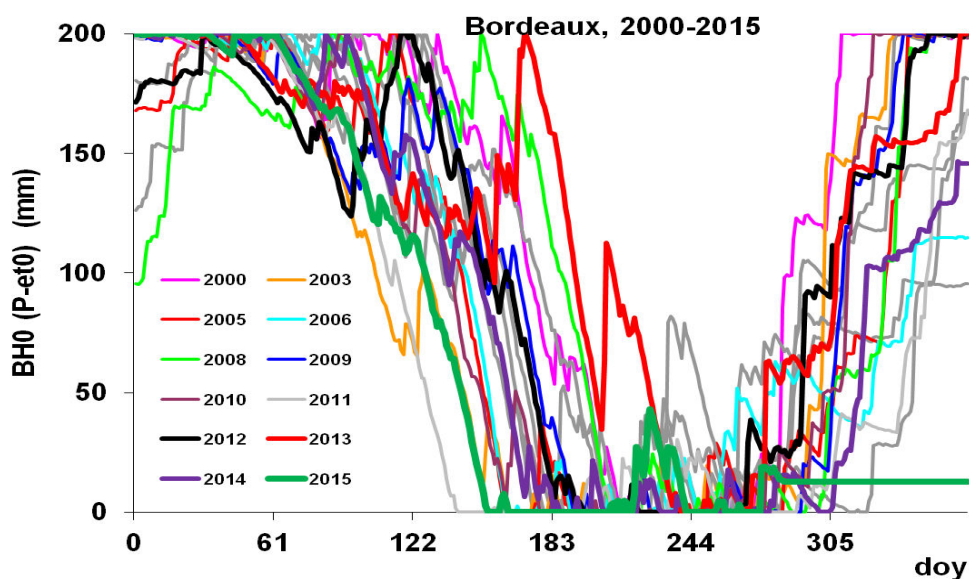


Figure 6

*Variation in the water stress index in 2015 compared to the 15 last vintages
Data from INRA (Philippe PIERI)*

The first berries changed colour in the last ten days of July, but the beginning of véraison was slow due to the very dry weather. The return of showers on the 7th of August gave new impetus to véraison almost immediately.

So, while the first grapes changed colour on the 22nd of July in our reference vineyards, mid-véraison was not reached until the 6th of August. All plots had changed colour by the 17th of August (Tableau II).

Table II

Mid-flowering and mid-véraison dates in 2015 compared to 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2007, and the average of the last 10 years

Period	Mid-flowering	Mid-véraison
1994-2014	3 June	6 August
2007	26 May	3 August
2008	11 June	15 August
2009	5 June	3 August
2010	9 June	9 August
2011	17 May	21 July
2012	11 June	12 August
2013	18 June	22 August
2014	7 June	13 August
2015	5 June	6 August

The first two weeks of August were cooler. Daytime temperatures fluctuated as great deal from one day to the next, but nights were relatively warm. This created a low thermal amplitude during the first part of ripening that slowed down the start of the accumulation of anthocyanins. The last 10 days of the month atmospheric pressure increased and the sun shone brightly, leading to temperatures above 25°C. On the whole, August 2015 was warmer than usual (Table I, Figure 7).

The rain in August unquestionably saved the vintage, boosting the vine's essential functions and making sure that the latter part of véraison was quick and even (Figure 7). This was the only month of the year with more than usual precipitation (an average of +30 mm). However, the rain was not evenly distributed in the Bordeaux wine country (Figure 8). The impact of this precipitation in the middle and end of the month varied from one region to another, and depended on the type of soil. Saint Emilion had the most rain at the beginning of the month, but the Northern Médoc had the most cumulative rainfall (Figures 8 and 9), especially due to heavy showers after the 21st of August. This meant that the grape berries varied in size according to terroir and there was possible diluted colouring potential in some instances, especially with Merlot.

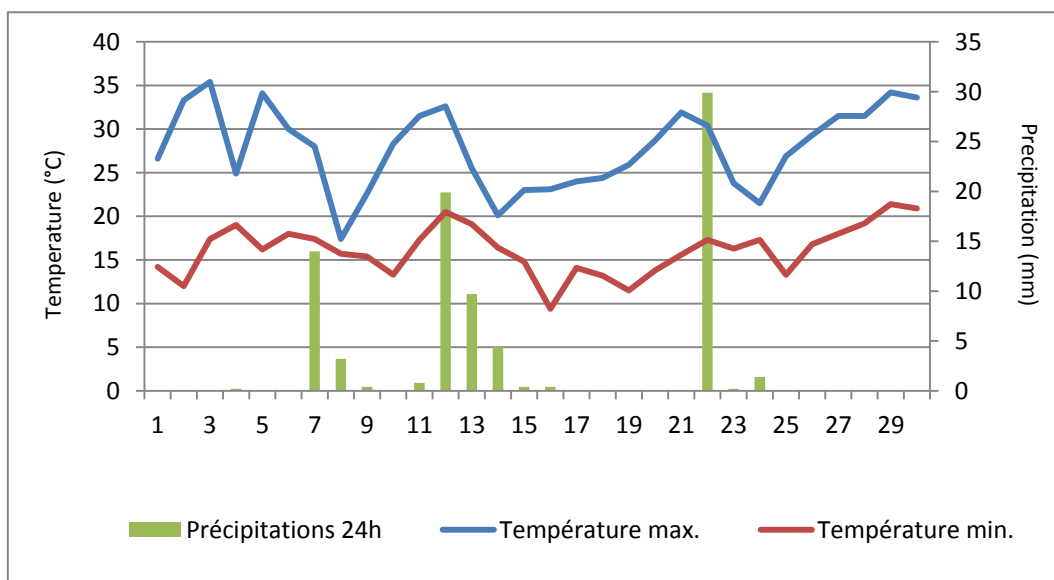


Figure 7
Daily variations in temperature and precipitation in August 2015
Data from Mérignac (Météo France)

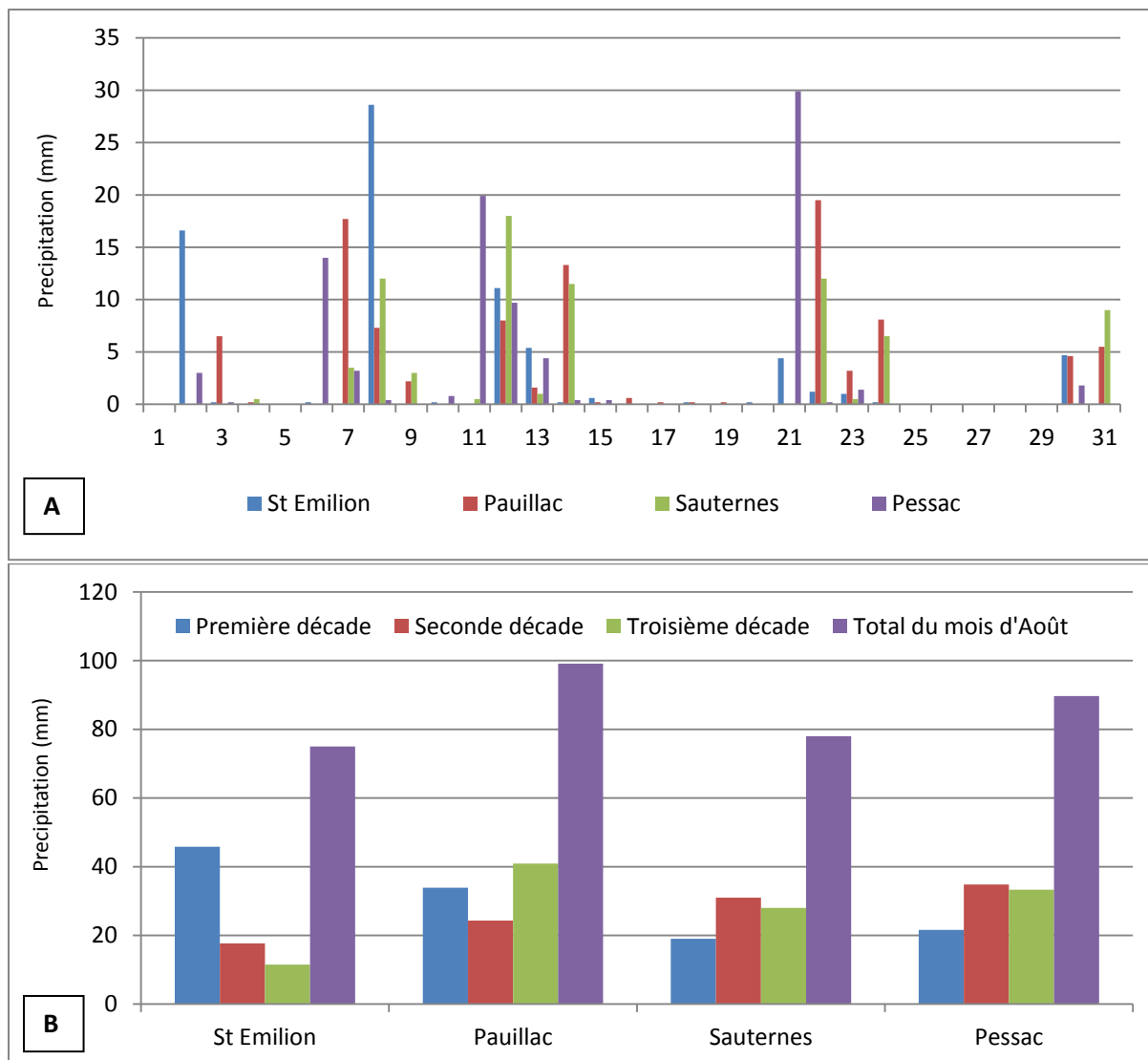


Figure 8
Breakdown of precipitation (mm) by region in August 2015
 A- Daily breakdown
 B- Breakdown by 10-day period and total precipitation

Thus, at this stage, the first three conditions for a good red wine vintage – flowering and fruit set that were both early and well grouped together during fine, dry weather, and a stop to vegetative growth – were perfectly satisfied.

September and October were cool and sunny, without rain. This meant that there was no rush to pick the grapes, and that the two final conditions for a successful vintage were also met.

Other than Saint Estèphe, with 118 mm of rain compared to the usual 35, September 2015 was dry, but not excessively hot. The thermometer did not go above 30°C one single day of that month, nor did it in October (Tableau II). This meant that there was no worry about ripening.

This was hastened by August showers. The sunshine and relatively cool night-time temperatures were conducive to the accumulation of colouring compounds as well as preserving aromas and acidity, which was rather low.

These weather conditions worked against the spread of grey rot, except in certain parts of the northern Gironde region, where fairly heavy rain in early September sometimes led to early picking.

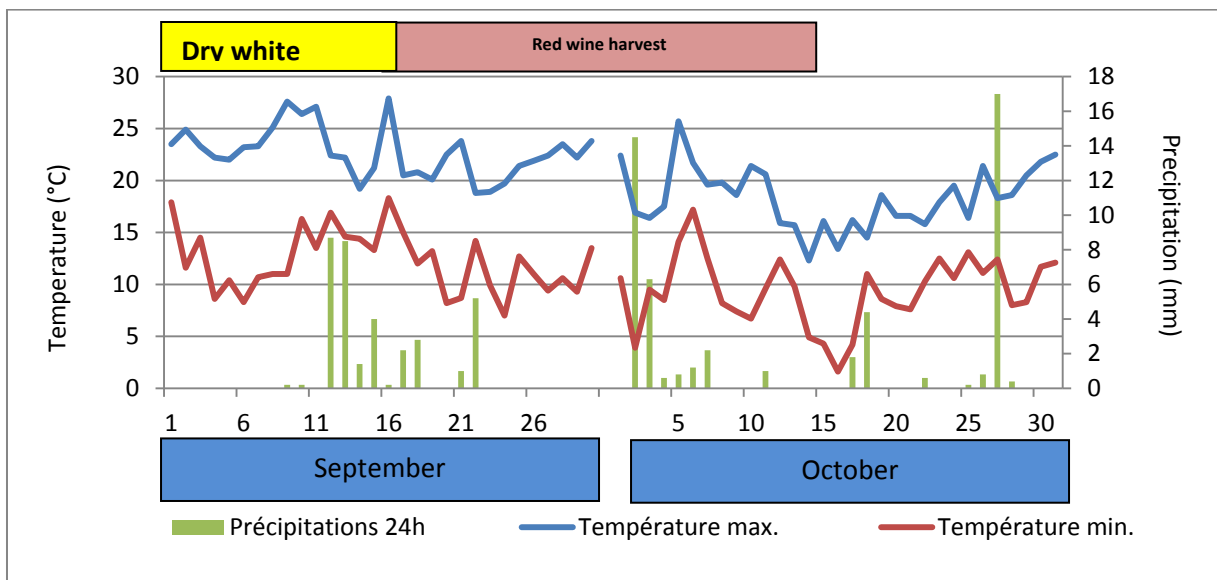


Figure 9

*Daily variations in temperature (°C) and precipitation (mm) in September and October 2015
Data from Mérignac (Météo France)*

Therefore a dry, but not excessively hot month of September (the fourth condition for a great red wine vintage) ensured ripening of the various grape varieties. October was just as sunny, completing the final stages of ripening for the Cabernets and improving the extractability of colouring compounds without a significant drop in acidity.

Despite the heat in June and July, the 2015 vintage was not particularly early.

The dry white wine harvest began in the Graves and Pessac-Léognan appellations in the very last days of August (Table III, Figure 9), quite close to the 2010 dates. The grapes were in very good condition and of excellent quality: sweet, fruity, and with sufficient acidity (Table IV).

Tableau III

Harvest dates for grapes in the Graves region used to make dry white wines in 2009, 2010, 2011, 2012, 2013, 2014, and 2015

	Sauvignon Blanc	Sémillon
2010	2 - 15 September	15 - 20 September
2011	22 - 31 August	1 - 5 September
2012	3 - 10 September	10 - 18 September
2013	10 - 22 September	21 - 25 September
2014	6-12 September	12-20 September
2015	28 August-6 September	5-11 September

Table IV

Composition of Sauvignon Blanc grapes from a plot with limestone soil in the Graves region in 2010, 2011, 2012, 2013, 2014, and 2015

	Potential alcohol (%)	Total acidity (g/l)	pH
2010	12.6	4.6	3.15
2011	11.6	5.6	3.05
2012	12.9	5.3	3.05
2013	12.4	6.0	2.92
2014	12.4	7.6	3.05
2015	13.0	6.3	3.00

The red wine grape harvest began with Merlot in the last 10 days of September except for certain areas where rain in the early part of the month had caused grey rot to appear. The Cabernets and Petit Verdot were picked somewhat later, in mid-October, taking advantage of several periods of fine weather without rain (Figure 9).

Obviously, the fifth and final condition for a good red wine vintage – fine weather during the harvest – was perfectly met in 2015.

All prerequisites were thus in place for excellent quality grapes in 2015

Low acidity and variable berry size depending on the degree of rainfall in the month of August are a main feature of the 2015 vintage (Table V). As opposed to 2014, when berries weighed more than any of the 5 preceding vintages, significant water stress during vegetative growth in 2015 called a halt to early growth. Without August showers, the 2015 berries would surely have been the smallest in many years.

This water stress also accounts for low malic acid content – in fact, the lowest since 2009 except for 2011 (Figure 10), combined with high pH – and was also unfavourable to the synthesis of isobutylmethoxypyrazine, which was virtually undetectable on the occasions when ripeness was first monitored.

Thereafter, depending on the type of soil and so long as there was moderate rainfall in August and September, the berries were finally able to swell. The average weight was close to the average of the last 5 years, as well as lower than 2014, but greater than 2010 or 2013 (Figure 10, Table V). This late weight gain did not interfere with the accumulation of sugars, which was greater than in previous vintages (Figure 10, Table V).

Table V
Variations in grape sugar content and acidity during ripening

	Weight per 100 berries (g)	Sugars (g/l)	TA (g/L H ₂ SO ₄)
2015			
6/9 Merlot	131	239	3.7
Cabernet Sauvignon	118	224	4.5
20/9 Merlot	147	264	3.0
Cabernet Sauvignon	124	247	3.7
2014			
8/9 Merlot	185	197	6
Cabernet Sauvignon	141	190	6
21/9 Merlot	184	229	4.1
28/9 Cabernet Sauvignon	142	223	5
2013			
10/9 Merlot	118	207	5.2
Cabernet Sauvignon	100	188	6.8
30/9 Merlot	118	219	4
Cabernet Sauvignon	119	215	3.5
2010			
3/9 Merlot	120	198	4.3
Cabernet Sauvignon	101	171	6.1
20/9 Merlot	125	242	3
27/9 Cabernet sauvignon	108	225	3.6
2009			
3/9 Merlot	155	203	4.3
Cabernet Sauvignon	149	178	5.7
20/9 Merlot	113	249	2.4
Cabernet Sauvignon	130	226	3.5

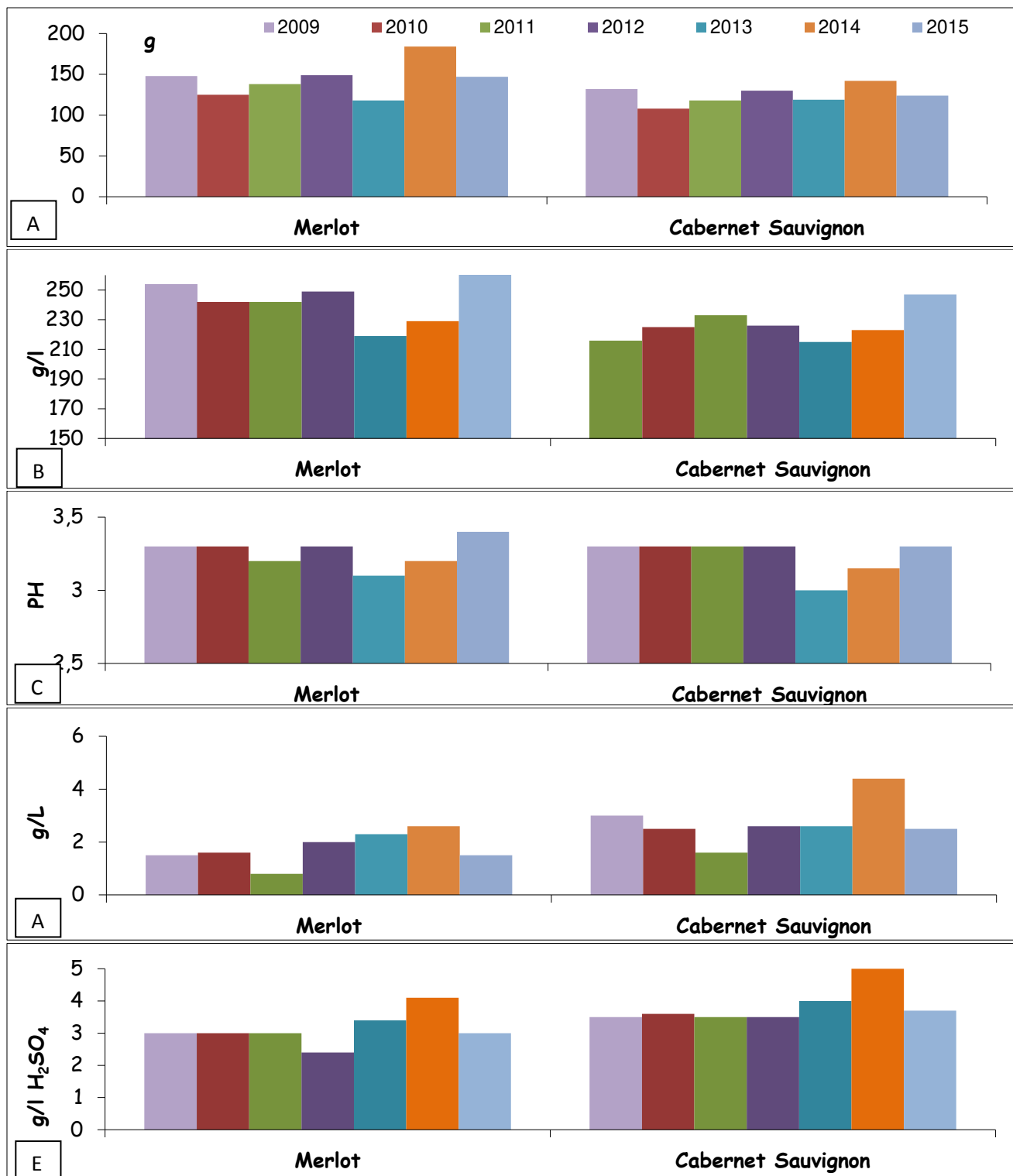


Figure 10

Analytic characteristics of berries in the 2015 vintage, compared with the 5 previous vintages for Merlot and Cabernet Sauvignon grapes in various plots used to define maturity

A: Weight in grams of a berry – B: Sugar content (g/L) – C: pH – D: Malic acid content (g/L) – E: Total acidity (g H₂SO₄/L)

Alternating cool nights and sunny days in September was conducive to the continuation of anthocyanin concentration, which had begun slowly in August. Content was lower than in 2010 and 2011, close to 2009 (Figure 11). It is nevertheless important to note that phenolic potential varied greatly between estates due to different degrees of water stress in July, plus the differences in rainfall during the last two weeks of ripening.

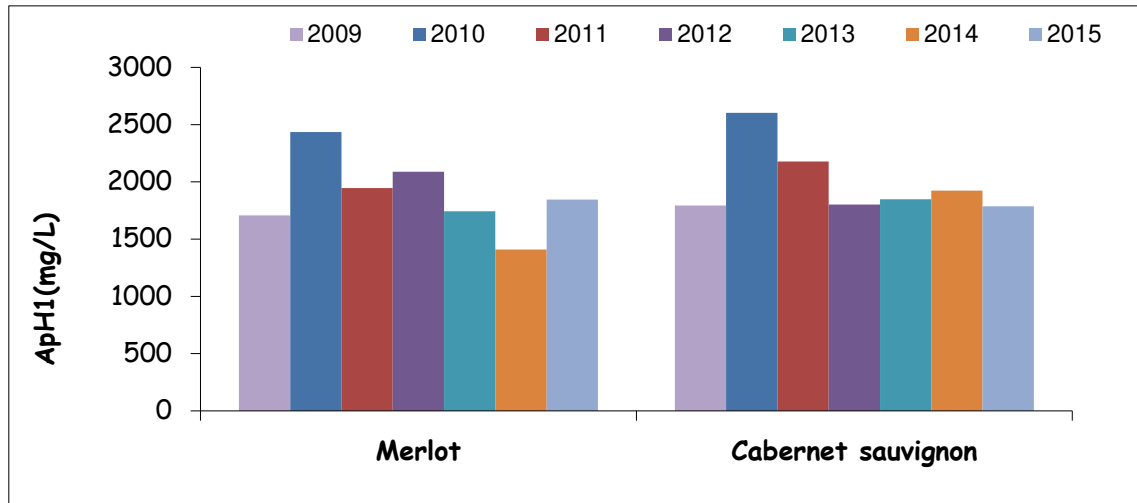


Figure 11

Total anthocyanin content (mg/L) of Merlot and Cabernet Sauvignon berries in 2015, 2014, 2013, 2012, 2011, 2010, and 09 in our reference vineyards

The early appearance of noble rot is a key factor in successful vintages in La Sauternes and Barsac. Good late-ripening vintages are in the minority. The 2015 crop was both abundant and very early-ripening. For instance, figure 12 shows the chronology of picking at a wine estate in Sauternes. 80% of the crop was harvested by the end of September.

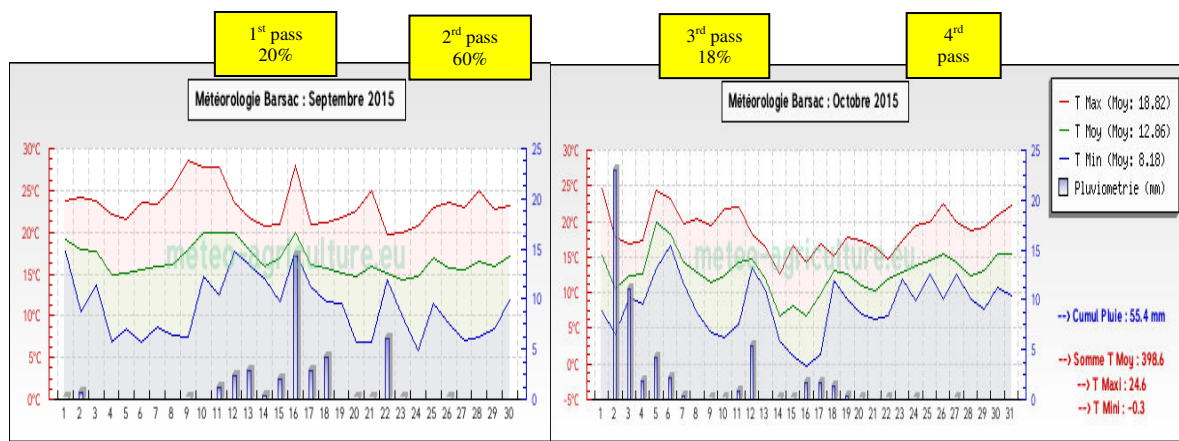


Figure 12

*Daytime temperatures and precipitation in September and October 2015 in Barsac
Chronology of the development of noble rot and progression of passes (example)*

In short, the 2015 harvest was a very successful for all grape varieties and all colours.

The dry white wines are tremendous – fruity, concentrated, and more round than the 2014s.

The sweet white wines are sumptuous – focused, pure, fresh, rich, and elegant.

The red wines are delicious. They possess the charm and inimitable grace of great Bordeaux.