The 2018 vintage in Bordeaux

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After a traumatic 2017 vintage due to frost, would nature go on to provide more propitious conditions in 2018? A particularly rainy spring, marked by several violent hailstorms, gave rise to serious concerns. However, exceptionally dry, sunny weather from mid-July to late October allayed those worries. Initial fears therefore gradually gave way to a guarded optimism leading up to the harvest, followed by real enthusiasm by the time that fermentation was complete.

As an introduction to this vintage report, let us once again list the five conditions that account for a perfect vintage for red Bordeaux.

1) and 2) - Relatively quick flowering and fruit-set during weather that is sufficiently warm and dry to ensure good pollination and predispose towards even 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 no later than *véraison* (colour change).

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 (relatively dry and medium-warm) weather during the harvest making it possible to pick the grapes in each plot at optimum ripeness without running the risk of dilution, rot, or loss of fruity aromas.

The particularly rainy spring led to fears of *coulure* (shot berries), but milder, more clement weather later on was conducive to flowering, which meant that the first condition was met. However, frequent showers until early summer were favourable to the spread of mildew. In fact, intense mildew attacks led to major crop loss. In addition, significant water reserves in the soil constituted since winter, combined with dull, wet weather, prevented early water stress from occurring. Although delayed, the halt to vegetative growth post-véraison was quick and abrupt due to the hot, dry summer. Sugar levels rose rapidly and the grapes ripened under ideal conditions. With the exception of several showers, the beautiful summer weather lasted until late October, and was conducive to harvesting grapes at just the degree of ripeness desired by each winegrower. The fourth and fifth conditions were thus completely fulfilled.

Thanks to the absence of grey rot and the diversity of picking dates, the harvest of red wine grapes lasted exceptionally long, from early September to late October. While all of the conditions were not entirely met, the unusual weather in 2018, particularly during ripening, was propitious to producing outstanding red wines, unquestionably among the greatest Bordeaux has produced.

Despite the hot summer, the white wine grapes retained a satisfactory level of acidity and promising aromatic potential. They had high sugar levels and were picked early during dry weather.

Producing fine sweet white wines requires the development of noble rot at just the right time, i.e. as soon as the grapes are ripe, high in sugar, and with good acidity. The drought conditions in 2018 followed by an Indian summer delayed the onset of *Botrytis cinerea*. Noble rot spread quickly and evenly further to rain in mid-October. While not attaining the freshness and brilliance of the finest vintages, 2018 is undoubtedly a very good year for sweet white wines, which are well-focused and concentrated.

A very wet and rather cool winter resulting in late bud break

After a hot, dry 2017 vintage, early 2018 will long be remembered because of the huge amount of rainfall (Figure 1, Table I). The year started off with a wet, windy month of January. Despite the grey skies, temperatures were also exceptionally mild. Very frequent precipitation, exceeding 120 mm, fell during 20 days in January (Figure 2). This rainfall was accompanied by considerably reduced sunshine. Furthermore, with the exception of 2004, January 2018 was the greyest since 1991, yet one of the warmest of the past one hundred years.

February was rather cold and dry, with below-average cumulative precipitation (Figure 2). Influenced by northerly winds, February temperatures were 2 to 3°C lower than average (Figure 3), with 16 days of frost and some snow on the 6th and 7th. March was no more springlike. The weather was cloudier than usual, with spring showers, gusts of wind, and cool temperatures on an almost daily basis. This was one of the wettest months of March on record, with 20 days of rainfall. Cumulative rainfall in the northern part of the Gironde was more than double the average (Figure 2). Despite a relatively mild two weeks at the start of the month, the average temperature in March was almost 1°C lower than usual (Figure 3).

For the above reasons, vegetative growth did not start in late March as in previous years.

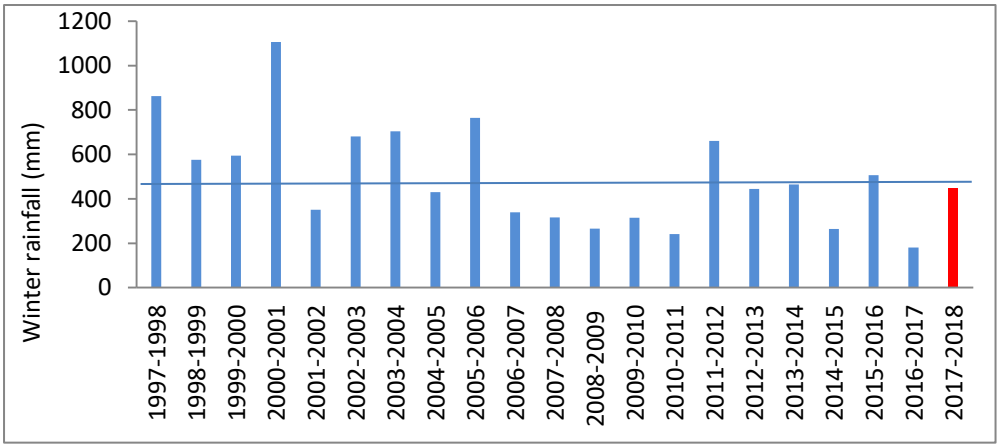

Figure 1
Cumulative rainfall from December 2017 to March 2018 compared to the 30 previous winters.
Data from Mérignac (Météo France)

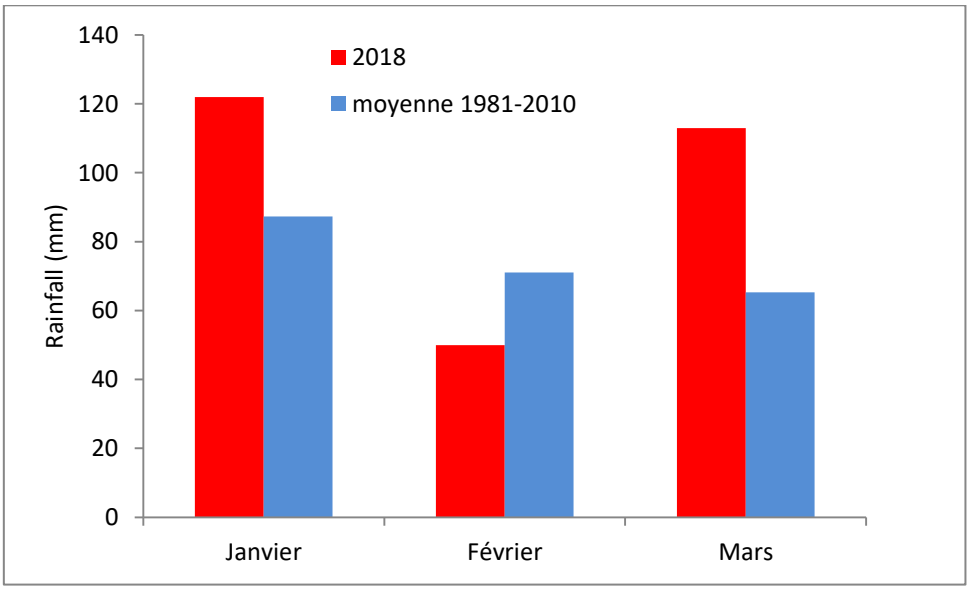

Figure 2
Cumulative winter rainfall (mm) in 2018
Data from Mérignac (Météo France)

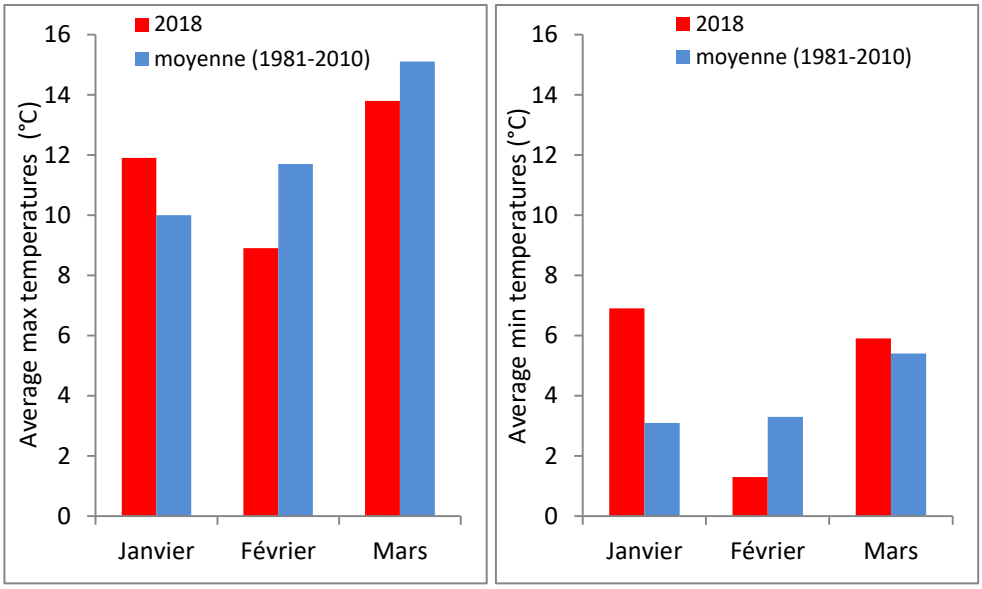

Figure 3
Average minimum and maximum temperatures in the winter of 2018
Data from Mérignac (Météo France)

Table I
Weather data for 2018, rainfall and temperature (compared to the 1981-2010 average) and hours of sunshine (compared to 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)	
	2018	Average 1991-2010	**2018**	Average 1981-2010	**2018**	Average 1981-2010	**2018**	Average 1981-2010
January	**35**	95	**122**	87	**6.9**	3.1	**11.9**	10.0
February	**87**	115	**50**	71	**1.3**	3.3	**8.9**	11.7
March	**132**	170	**113**	65	**5.9**	5.4	**13.8**	15.1
April	**165**	182	**78**	78	**9.8**	7.4	**19.3**	17.3
May	**217**	217	**47**	80	**11.5**	11.0	**21.9**	21.2
June	**247**	239	**46**	62	**16.1**	14.1	**26.1**	24.5
July	**309**	249	**48**	50	**17.6**	15.8	**29.2**	26.9
August	**290**	241	**19**	56	**17.1**	15.7	**29.5**	21.7
September	**272**	203	**3**	84	**13.8**	12.9	**27.3**	24.0
October	**127**	147	**89**	93	**7.0**	10.4	**14.5**	19.4

April: a month of contrasts, starting out rainy then abnormally warm and cool in the last ten days

The first buds appeared after the 10th of April, i.e. 10 to 12 days later than in 2017 due to a persistent cold spell.
The thermometer rose from the 13th onwards, reaching summer levels between the 17th and the 24th (Figure 4, Table I). Temperatures were on occasion 10°C above average, and in excess of 25°C some days.

In this context, phenological ripeness developed very quickly (Figure 5). The 2018 vintage, considered behind at bud break, was, in fact, comparable to an average year at the 10 unfolded leaves stage.

Despite the warm spell, sunshine was less than average in April (Table I). The period from December 2017 to April 2018 was the greyest in the Aquitaine region since 1993-1994.
Rainfall was variable, although close to normal in Bordeaux, with eleven days per month of precipitation on average. There were nevertheless considerable differences between appellations. Rainfall was essentially concentrated at the beginning and the end of the months and did not occur between the 14th and the 26th.

These conditions were ideal for vegetative growth. At the end of the month, i.e. 3 weeks after bud break, large quantities of grape bunches appeared, a great sign of relief for winegrowers who suffered from the frost in 2017.

The months of May and June were particularly wet and conducive to the spread of mildew, along with localised hailstorms.

Spring 2018 was affected by weather likely to lower initially promising yields.

Like the month of April, May started cool, even cold, in certain appellations (a record-breaking morning temperature of 2.4°C was recorded in St Émilion on the 1st of May). As a result, vegetative growth temporarily slowed down. The thermometer then rose thanks to a spell of warm weather on the 7th, and again from the 17th to the 24th (Figure 6). There were also heavy showers in May. Rainfall varied significantly from one region to the next: 70mm in St Émilion between the 24th and the 29th of May (38mm on average throughout Bordeaux) and 100mm in the southeastern part of the Entre-Deux-Mers region the following week (22mm on average for the entire region).
In addition to these heavy showers, two hailstorms struck: on Monday the 20th of May in the southern part of the Gironde department, then on the 26th, in Blaye and Bourg, as well as in part of the Médoc and the Entre-Deux-Mers. 2,500 hectares in the Côtes de Bourg appellation were also affected, including 1,000 hectares where 80% of the crop was destroyed.
After a very wet winter and spring, heavy rainfall in late May saturated the soil in some places, making it difficult to access the vines.

Flowering began in late May under satisfactory conditions, despite below-average afternoon temperatures often recorded until the 18th. Although bud break was late, mid-flowering took place in our reference vineyards on the 3rd of June, i.e. a week later than in 2012, but a similar time compared to the twenty-year average (Table II). Flowering was rapid, taking place over a maximum of ten days with little *coulure* despite showers on the 6th and 7th of June. Rain continued from the 9th to the 18th of June, with cumulative rainfall 2 to 4 times above average in certain regions. The last ten days of the month marked a return to high temperatures and blue skies, which enhanced berry development.

At this stage, the first condition for a great vintage, i.e. quick, even flowering, with little coulure, was perfectly fulfilled. However, numerous mildew outbreaks were a cause of concern. In fact, such a degree of mildew had rarely been seen. The intensity of this mildew, the difficulty of ensuring adequate protection due to the weather conditions, the appearance of symptoms on the leaves, as well as on grapes from mid-June onwards, sometimes resulted in losing part of the crop. Ripening potential was also impacted.

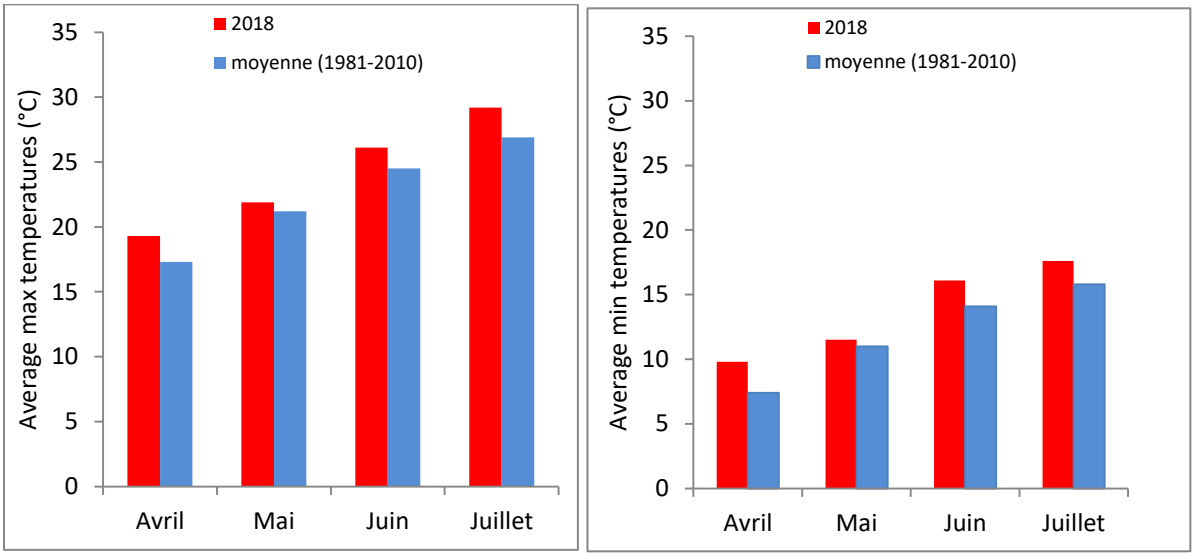

Figure 4
Average maximum and minimum temperatures in the months of April, May, June and July 2018
Data from Mérignac (Météo France)

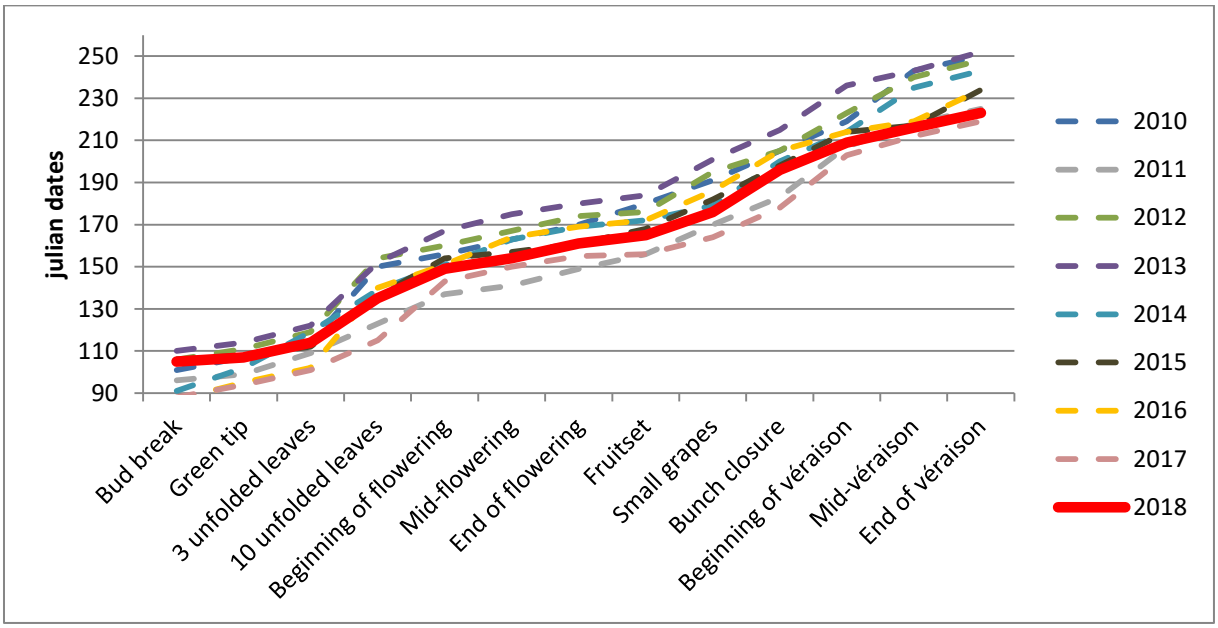

Figure 5
Development of phenological ripeness in 2018 compared with 2017, 2016, 2015, 2014, 2013, 2012, 2011 and 2010 *(Données SRAL and ISVV)*

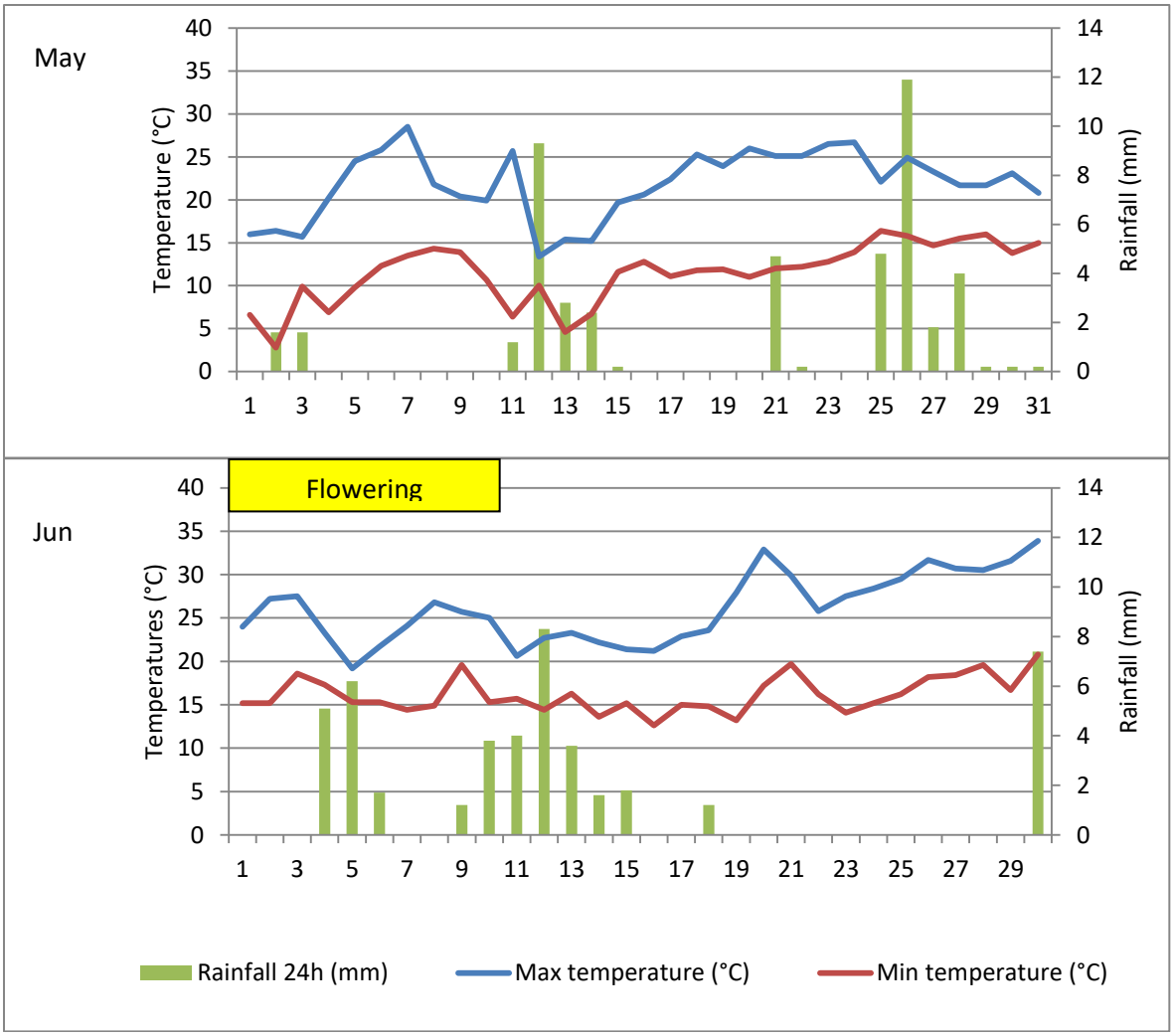

Figure 6
Daily variations in temperature and precipitation in June 2018
Data from Mérignac (Météo France)

An exceptionally dry summer from mid-July onwards reduced the threat of mildew and ensured good ripening

Above-average temperatures were recorded during the first two weeks of July, which was marked by several hailstorms on the 4th in the southern Médoc, as well as on the 15th in Bordeaux and the southern part of the Gironde department. In 2018, over 10,000 hectares were affected by frost in the Gironde.

As in previous months, cumulative rainfall in July varied significantly from one region to another: less than 40mm in the far north of the Médoc and nearly 100mm in Sauternes.
July 2018 had the highest average temperature since 1954. Night-time temperatures were rarely below average. In fact, they were the warmest in over half a century!

These warm, humid conditions caused considerable damage from mildew. This occurred during bunch closure in mid-July. In addition, water stress was absent and vegetative growth was very vigorous.
The second condition for a perfect red wine vintage – no rainfall after fruit set, was not met.

Fortunately, the weather changed radically in mid-July, paving the way for a hot, dry summer, particularly conducive to slow, even ripening. Late July and the month of August featured abundant sunshine and only a few storms (Figure 7, Figure 8). Average daytime and night-time temperatures were 0.5 to 3°C higher than usual for that time of year, but without reaching record 2003 levels.

Véraison (colour change) was observed in our reference vineyards from late July, while mid-véraison was observed on the 4th of August, close to the 30-year average (Table II). With the exception of vineyards affected by hailstorms, *véraison* was rapid and even, ending on the 15th of August.

Following a rainy spring, water reserves in the soil were particularly substantial. Sufficient water stress to bring about an end to vegetative growth only appeared between mid-véraison and the end of véraison depending on the terroir and level of water reserves. It took until mid-August to see water stress comparable to 2016 (Figure 9).

The third condition for a great red vintage was best met on the most well-drained soils and in regions spared by July storms.

Table II

Mid-flowering and mid-véraison dates in 2018 compared to 2017, 2016, 2015, 2014, 2013, 2012, 2011, 2010, and the average of the last 20 years

Period	**Mid-flowering**	**Mid-véraison**
1997-2017	3 June	6 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
2016	11 June	7 August
2017	30 May	30 July
2018	**3 June**	**4 August**

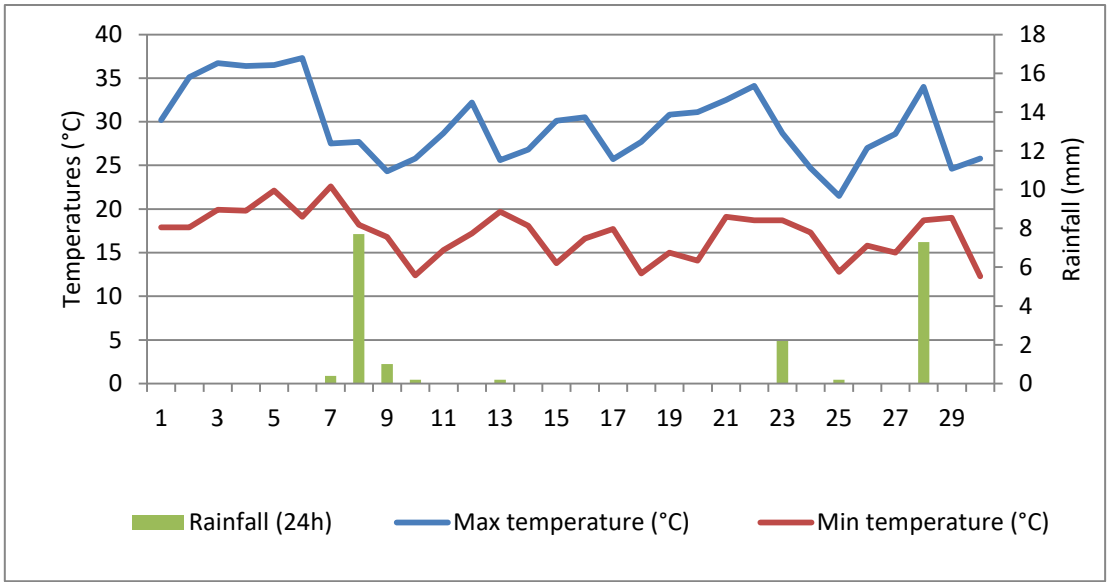

Figure 7
Daily variations in temperature and precipitation in August 2018
Data from Mérignac (Météo France)

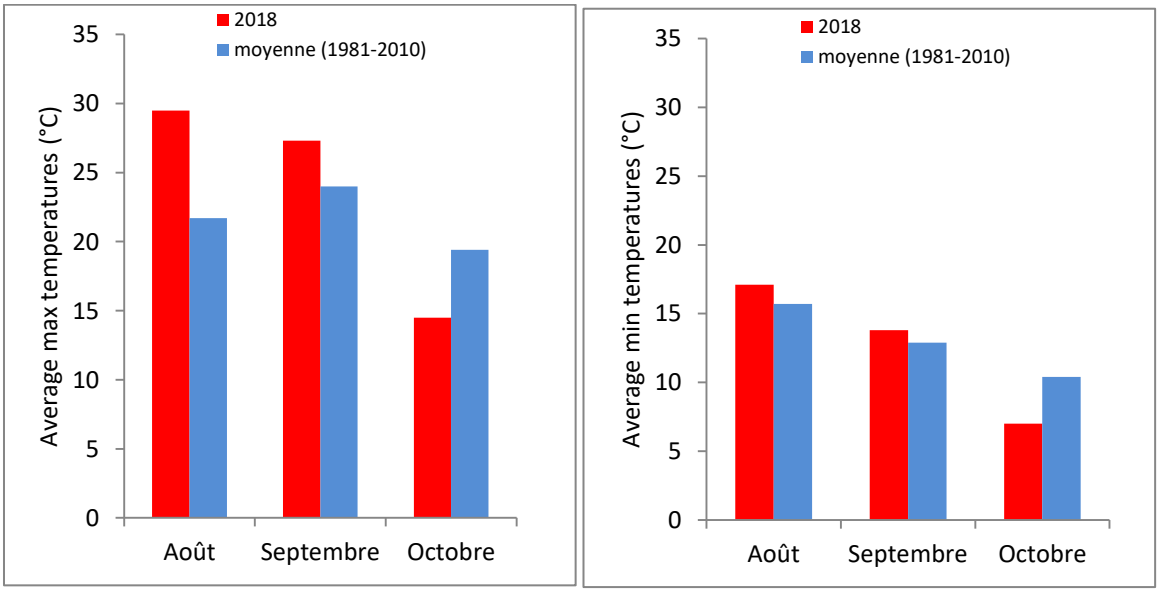

Figure 8
Average maximum and minimum temperatures in the months of August, September and October 2018
Data from Mérignac (Météo France)

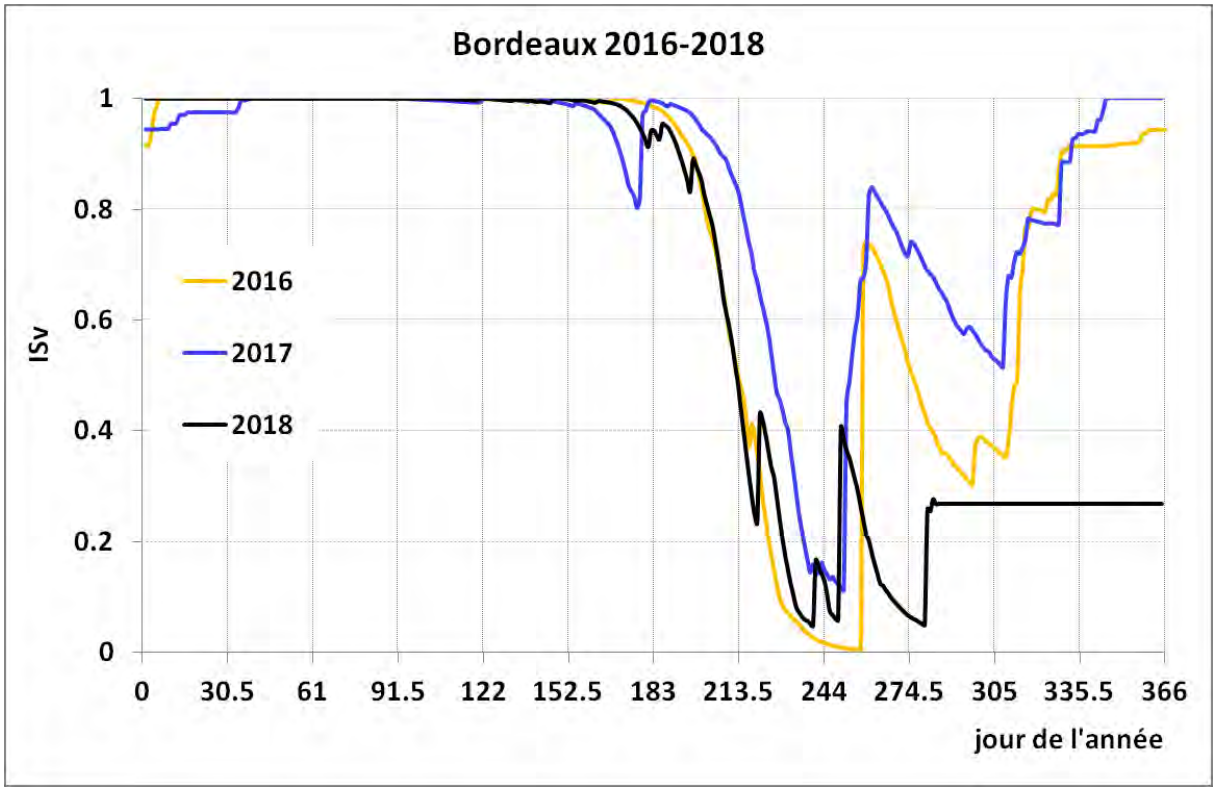

Figure 9
Variation in the water stress index in 2018 compared to
the 2016 and 2017 vintages
Data from INRA (Philippe PIERI)

An early-ripening vintage followed by an outstanding Indian summer conducive to optimum ripeness

Ripening began during hot, dry weather. However, thanks to cool night-time temperatures and in the absence of significant water stress, the red wine grapes developed good colour and tannin characteristic of a great vintage.

High temperatures and dry weather from mid-July onwards led to fears of inhibited ripening on the most well-drained soils due to sudden, excessive water stress. However, several showers in late August (variable according to appellation) prevented a halt to ripening, with the exception of young vines on the driest soils.
The month of September was exceptionally dry and sunny, with significant thermal amplitude, which was propitious to aromatic expression, the synthesis of anthocyanins, the degradation of herbaceous notes, and a long, fruity aftertaste. September 2018 will be remembered for being particularly warm and sunny. With maximum temperatures 2 to 4°C above average (Figure 8, Table I), this was also one of the sunniest Septembers in the past 60 years.
These conditions were particularly conducive to slow, even ripening. They also made it possible to wait patiently for the best time to pick, without the risk of grey rot. Although the

beginning of the growing season was cause for concern, the ripening period was much less stressful.

For the above reasons, the white wine harvest began in Sauternes on the 23rd of August, i.e. one week later than in 2017 (Table III).

Picking started with Sauvignon Blanc in the Graves and Pessac Léognan in late August and ended in mid-September with the latest-ripening Sémillon (Table III).

Particularly high temperatures in late August and September led to fears of a very rapid drop in total acidity during ripening. However, the absence of early and excessive water stress due to considerable water reserves in the soil prevented this from happening. Grapes grown in vineyards spared by frost were in excellent condition as a result of the summer drought, which prevented the development of botrytis.

The grapes had higher sugar levels, but lower acidity than in 2017 (Table IV). Grapes grown on cooler clay-limestone soils developed and maintained excellent aromatic potential until the harvest. Yields were very satisfactory in most vineyards.

Table III

Harvest dates for grapes in the Graves region used to make dry white wines in 2012, 2013, 2014, 2015, 2016, 2017, and 2018

	Sauvignon Blanc	Sémillon
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
2016	2 - 15 September	8 - 18 September
2017	16 August – 7 September	1 - 15 September
2018	**23 August – 10 September**	**5 – 15 September**

Table IV

Composition of Sauvignon Blanc grapes from a plot with limestone soil in the Graves region in 2012, 2013, 2014, 2015, 2016, 2017, and 2018

	Potential alcohol (%)	Total acidity (g/l)	pH
2012	13.2	6.7	3.20
2013	12.8	7.5	2.98
2014	12.7	8.1	3.05
2015	13.5	6.5	2.99
2016	12.8	6.2	3.07
2017	13.0	7.2	2.92
2018	**13.8**	**6.8**	**3.10**

As opposed to 2017, when Merlot grapes were picked in a hurry, the 2018 red wine harvest began on the 7th of September, and became widespread during the week of the 17th (Figure 10).

Sugar levels in Merlot were very high compared to 2017, although total acidity was slightly lower (Table V, Figures 11, 12, 13). The pH of the must was often rather low, although it varied significantly from one estate to the next. Rigorous sorting removed grapes affected by mildew, thereby ensuring the quality of the must. The skins were thick, yet porous this year and gradually developed a high concentration of anthocyanins during ripening, thus providing a good level of easily extractable colour compounds. Slow drying out of the soil was conducive to a degree of ripening of grape seeds rarely seen (Figure 14).

Late August and the month of September are often decisive for the success of a vintage, and this was particularly true in 2018. Merlot grapes benefited from ideal conditions to achieve optimal ripeness. The fourth and fifth conditions for a great red wine vintage, i.e. a dry period without excessive heat and clement weather during the harvest, were perfectly met in 2018 for Merlot.

Table V

Variations in sugar content and acidity during ripening in reference plots

	Weight per 100 berries (g)	Sugars (g/l)	AT (g/L H_2SO_4)
2018			
27/8 Merlot	142	214	3.3
Cabernet Sauvignon	116	193	4.9
10/9 Merlot	143	233	2.5
24/9 Cabernet Sauvignon	126	230	2.8
2017			
28/8 Merlot	140	222	3.8
Cabernet Sauvignon	121	203	5.2
11/9 Merlot	144	225	3.0
18/9 Cabernet Sauvignon	131	217	3.2
2016			
06/9 Merlot	134	203	4.1
Cabernet Sauvignon	114	187	5.4
20/9 Merlot	151	246	3.0
Cabernet Sauvignon	119	223	3.2
2013			
08/9 Merlot	118	207	5.2
Cabernet Sauvignon	100	188	6.8
30/9 Merlot	118	219	3.4
Cabernet Sauvignon	119	215	4.0
2010			
3/9 Merlot	120	198	4.3
Cabernet Sauvignon	101	171	6.1
20/9 Merlot	125	242	3.0
27/9 Cabernet Sauvignon	108	225	3.6

Weather conditions were also ideal for late-ripening grape varieties

Ideal weather conditions in September lasted until mid-October, which was perfect for ripening Cabernet grapes in all terroirs, without any fear of rot (Figure 10). Featuring a high sugar content and low acidity without any herbaceousness as a result of high temperatures in late August, the berries developed easily extractable colouring matter, and, like Merlots grapes, the Cabernet seeds were of outstanding quality (Figures 11, 12, 13, 14, Table V). Although the grapes took a while to reveal their intrinsic fruitiness, their aromatic intensity was also remarkable, featuring complex notes of fresh red fruit, characteristic of vintages with slow, even ripening.

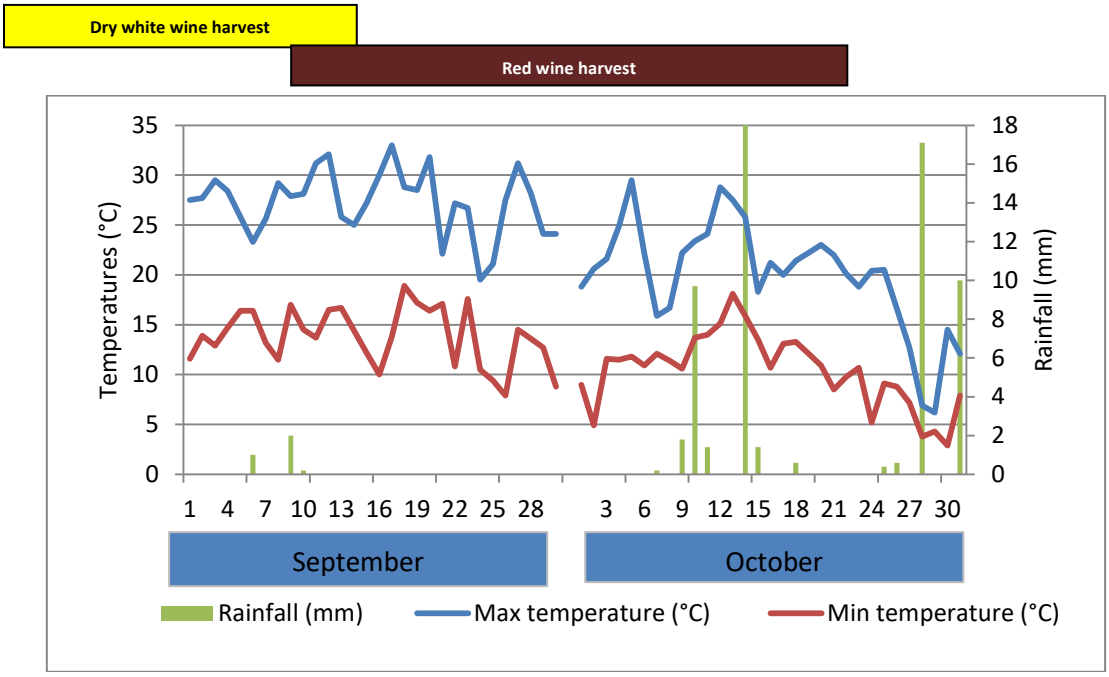

Figure 10
Daily variations in temperature (°C) and precipitation (mm) in September and October 2018
Data from Mérignac (Météo France)

As was the case for Merlot, the wonderful Indian summer enabled Cabernet Sauvignon grapes to continue ripening, and the fifth and final condition for a good red wine vintage was consequently fulfilled.

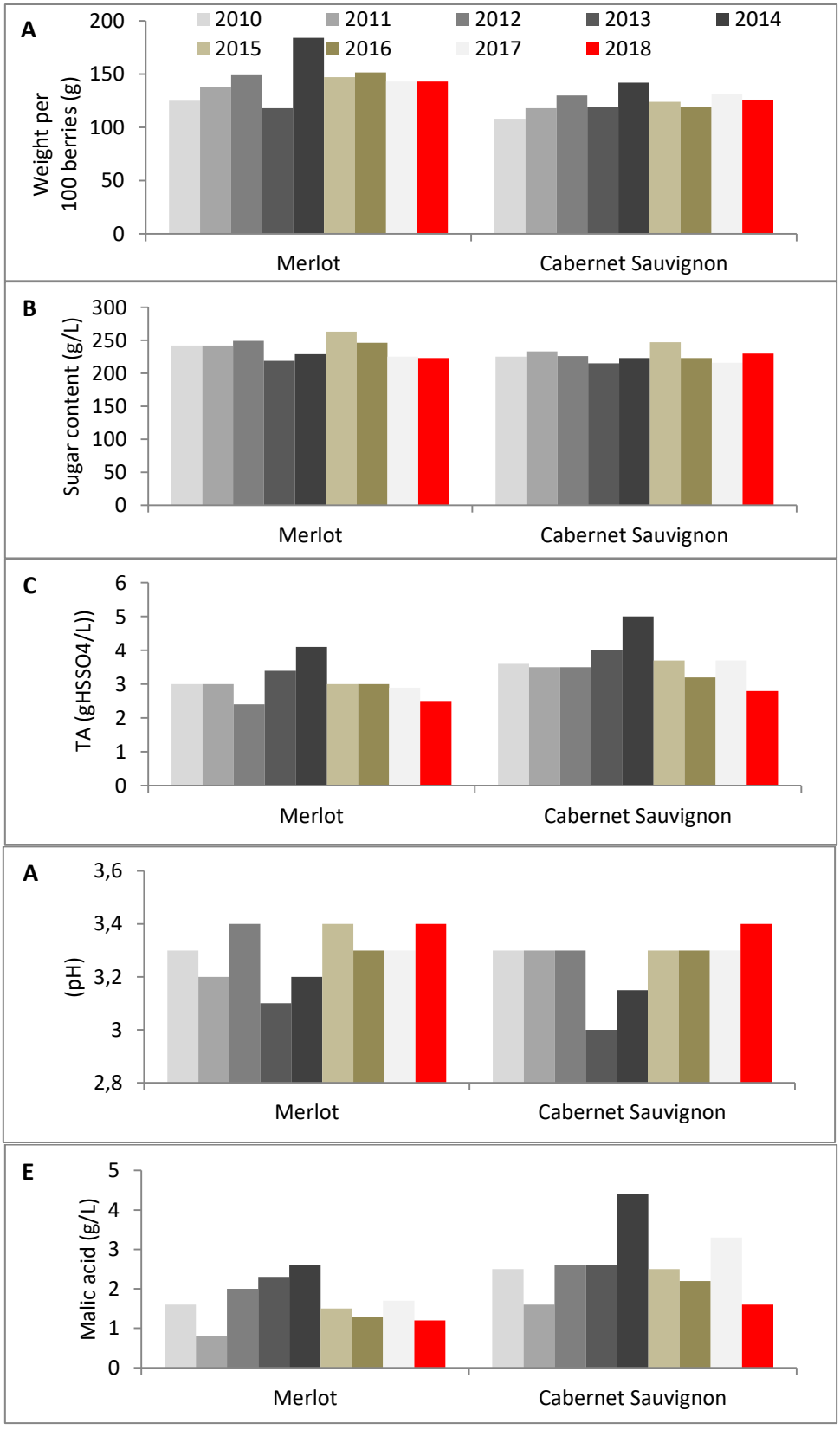

Figure 11

Analytical characteristics of berries in the 2018 vintage compared with the 8 previous vintages for Merlot and Cabernet Sauvignon grapes in various reference vineyards

A: Weight in grams per 100 berries – B: Sugar content (g/L) – C: Total acidity (g H_2SO_4/L)

D: pH - E: Malic acid content (g/L)

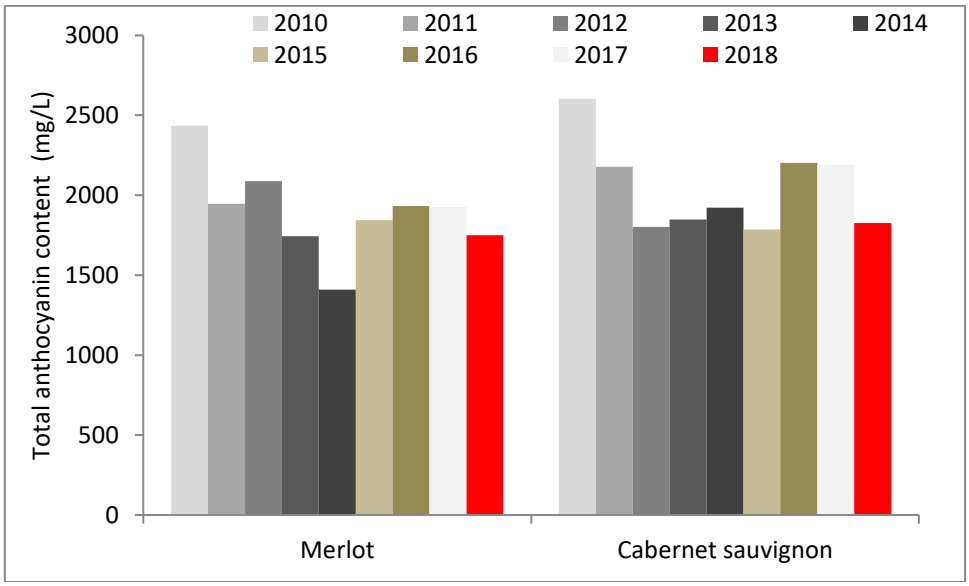

Figure 12
Total anthocyanin content (mg/L) in Merlot and Cabernet Sauvignon berries in 2018, compared with the 8 previous vintages for Merlot and Cabernet Sauvignon grapes in various reference vineyards.

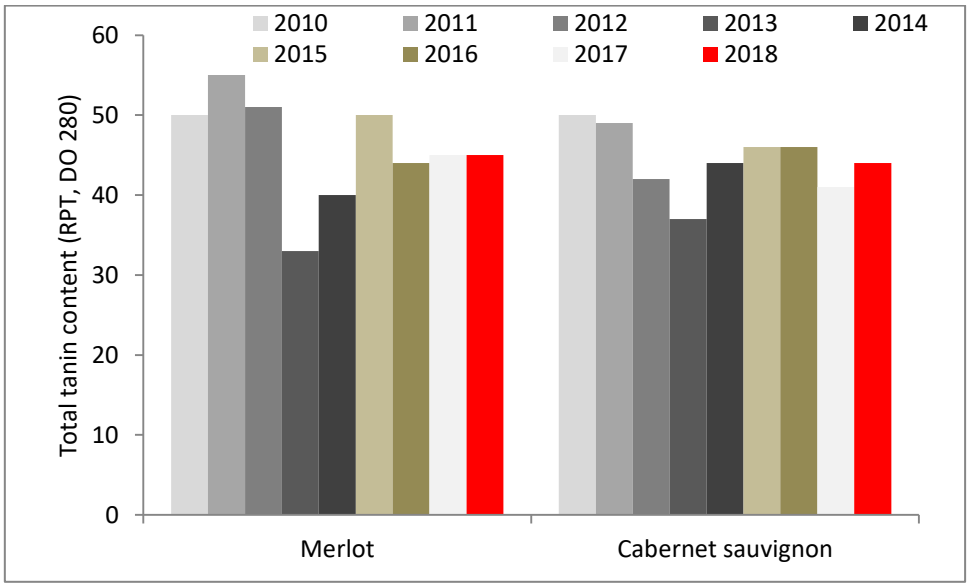

Figure 13
RPT tannic index of Merlot and Cabernet Sauvignon grapes in 2018, compared with the 8 previous vintages in various reference vineyards.

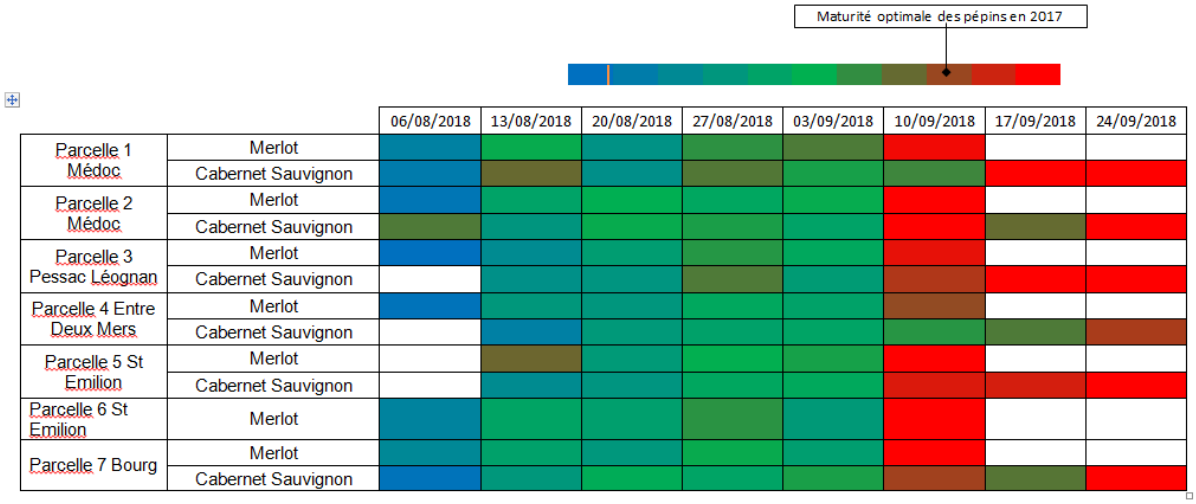

Figure 14
SCANPEP ripening index for Merlot and Cabernet Sauvignon seeds in 2018
The redder the indicator, the greater the degree of ripeness

The late, slow development of *Botrytis cinerea* in Sauternes

Despite a rainier summer in Sauternes than in other Bordeaux appellations, the absence of heavy showers, combined with high temperatures in August and September, delayed the development of *Botrytis cinerea* and was conducive to *passerillage* (raisining) on bunches with the greatest sun exposure. These grapes were removed at most estates during the first pass in late September. During the second week of October, alternating cool nights and sunny days created a humid microclimate which encouraged the spread of noble rot. The concentration of fully-botrytised grapes, enhanced by northerly winds, dramatically accelerated this development. The second pass turned out to be the most worthwhile both in terms of volume and quality (Figure 15).

A rainy period in mid-October triggered a new wave of botrytis. The third and final pass took place between late October and early November, depending on the estate.

The grape musts were rich, yet not excessively so, and very well-delineated. Harvested late, they did not have a high level of acidity, as opposed to most dry white wines. 2018 Sauternes are very typical of their appellation and have a highly-botrytised bouquet with apricot and candied orange aromas. The wines are powerful and flavoursome on the palate with no heaviness or bitterness.

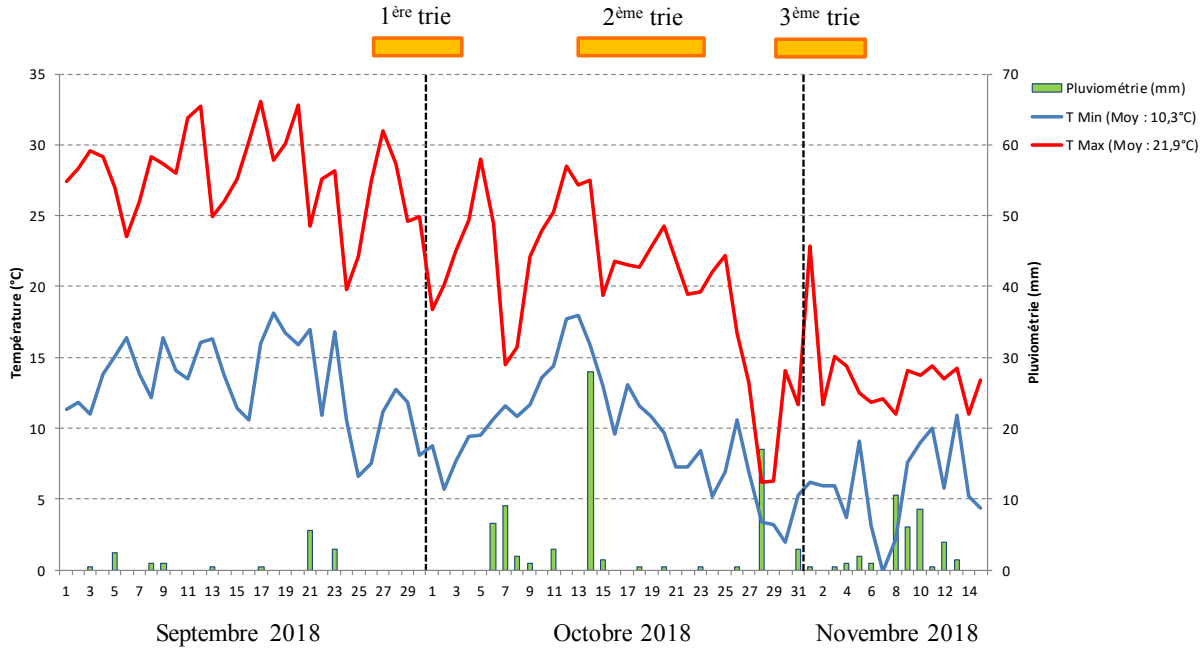

Figure 15
Daytime temperatures and precipitation in September and October 2018 in Sauternes
Chronology of the development of noble rot and the progression of passes (example).

Good dry white and sweet white wines, and outstanding reds throughout the Bordeaux region

While they may lack the panache and remarkable balance of 2017 vintage, the overall quality of 2018 dry white Bordeaux is excellent. Harvested early, and without ever suffering from drought conditions, the grapes were in perfect condition. The Sauvignon Blanc wines are soft and delicious with citrus and ripe fruit notes. The Sémillon wines are smooth and just as delicious. As is often the case, the best wines come from clay-limestone soils.

It is often said in Sauternes that "bad weather is any weather that lasts too long". While beneficial for red wines, the incredibly dry Indian summer of 2018 delayed the spread of noble rot. *Passerillage* (raisining) occurred in September. Rain in mid-October finally improved the situation and led to the quick development of *Botrytis cinerea*. The majority of the grapes were picked during the last two weeks of October. Featuring an extremely attractive aromatic profile, 2018 sweet white wines are rich, concentrated, and more deeply-coloured than usual. Despite their relatively low acidity, the best wines are well-balanced.

The first part of the 2018 growing season was challenging for winegrowers, who had to contend with very aggressive mildew. The resulting damage, combined with a hailstorm that struck the Blaye, Sauternes, Graves and southern Médoc regions, significantly affected yields at some estates. From mid-July onwards, a sudden, radical change in the weather provided a much more positive outlook of the vintage. The outstanding weather conditions in

August and subsequent Indian summer resulted in red wine grapes with a particularly high sugar content, satisfactory levels of tartaric acid and promising aromatic potential, although the latter appearing later than usual. The thick skins and concentration of tannins required meticulous care during extraction.

The success of the red wines was obvious at the beginning of ageing. While there is undoubtedly variation among individual estates, the quality of the wines is consistently high throughout the region, for all grape varieties on both the left and right banks. Better than the 2016 vintage and better still compared to 2017, the Merlot wines are deep and concentrated, while maintaining freshness in spite of their relatively high alcohol level. The Cabernet wines are classy, well-structured, and delicious, with a fine bouquet characteristic of the greatest vintages. Surprisingly, the difference in style between Merlot and Cabernet Sauvignon is less considerable than usual. The first blends are already proving to be quite promising, and are sure to delight lovers of fine Bordeaux. If we compare the growing season of the current vintage with other successful vintages so far this century, we can safely say that exciting tastings are in store.