The 2021 vintage in Bordeaux

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It is naturally tempting to become accustomed to excellence and to consider what is exceptional to be the norm. Already successful, the decade from 2010 to 2020 majestically drew to a close with a series of 2018, 2019 and 2020 vintages that boast distinctive styles yet are all equally astonishing. While this success is a cause for celebration and will go down in the history of great Bordeaux red wines, we need to bear in mind its unique character and not view it as a benchmark for future vintages, starting with the 2021.

Before discussing the weather conditions in 2021 and analysing the impact on the grapes and resulting wines, it is important to reiterate, as we do each year, the five prerequisites to creating a great red Bordeaux.

1) and 2) Relatively quick and even flowering and fruit-set during weather that is sufficiently warm and dry to ensure good pollination and predispose towards even ripening.

3) 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) Completely ripe grapes thanks to optimum photosynthesis in the leaves up until the harvest, without any noteworthy resumption of vegetative growth.

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.

These prerequisites should be considered as a guide to understanding the vintage rather than as a score chart for the year. This is particularly true for the 2021 vintage, where the diversity of situations and technical decisions calls for a nuanced analysis.

After a wet winter with alternating cool and mild spells, April started out pleasant, triggering early bud break. Unfortunately, this fine weather turned out to be detrimental. The nights of the 7th and 8th of April witnessed severe frost of historic proportions, which affected the entire Bordeaux region. This led to varying yield losses, which were drastic in certain areas, setting the stage for uneven ripening. Localised frost was also recorded in early May with gloomy, wet and cool conditions overall, which slowed down vine growth. Summer weather finally set in from early June, and flowering unfolded in favourable conditions, a week later than the twenty-year average. Storms in the Gironde during the second half of June were accompanied by abundant rainfall in places and even hail, causing localised damage. Vine growth continued, although frequent rainfall prevented water stress during fruit set, which impacted the size of the berries. Rain showers continued in July, which was grey and cool overall, increasing the spread of mildew attacks which first appeared in June. After frost and sometimes hail, the development of brown rot was a third concern, drastically reducing yields for the 2021 harvest and affecting the mood of winegrowers. *Véraison* (colour change) occurred in mid-August while the vines were still growing. Fortunately, the weather in late summer was

much more conducive to ripening, with long-awaited dry, sunny spells and significant variations between day and night-time temperatures. The red wine harvest started much later than previous vintages, and was underway in most estates in late September, under ominous skies. The berries were large, with a high malic acid content and the lowest sugar levels observed in a long time. The Indian summer proved providential in this late-ripening vintage. Sunny skies in October prompted the ripening of the Cabernets, which were harvested in very favourable conditions.

The dry white wine grapes were picked during the first twenty days of September. The cool summer preserved good acidity and the aromatic potential of the grapes, which were harvested in good condition.

Unfortunately, the Sauternes region was severely affected by frost and hail in 2021. In plots partially spared from damage, the spread of *Botrytis cinerea* was delayed by cool summer temperatures. Mid-September rainfall accelerated the development of noble rot in perfectly ripe grapes which had higher acidity compared to previous vintages. Satisfying the need for alternating weather conditions to produce great botrytised sweet white wines, the fine weather in October helped to concentrate the grapes, which were harvested in two to three passes.

A rainy winter full of contrasts, characterised by alternating wintry weather and mild springlike conditions, resulting in bud break being still early, yet later compared to 2020

After a cold and rainy end to 2020, 2021 began with temperatures below the seasonal average. Over the following two months, very mild and very cold conditions succeeded one another, accompanied by very heavy rainfall.

Despite alternating between mild and much cooler spells throughout the winter, temperatures were close to the seasonal average in January, and much higher in February (Table I, Figures 1 and 2), making for the third mildest February over the past 50 years, after 1990 and 2020.

The contrasting temperatures recorded in February continued through to March. March started out mild and springlike, and ended with record highs on the 29th and 30th; between these two periods, temperatures were often cool with frosty spells. As a result, average temperatures remained close to normal (Figure 1). Low rainfall in March helped dry out the soils, following three months of very wet weather over winter. Cumulative precipitation over the winter period was in line with the seasonal average (Figure 2).

Under these conditions, the buds began to swell by the end of March, although bud break did not become widespread until early April (Figure 3), i.e. one week later than in 2020, when it occurred very early.

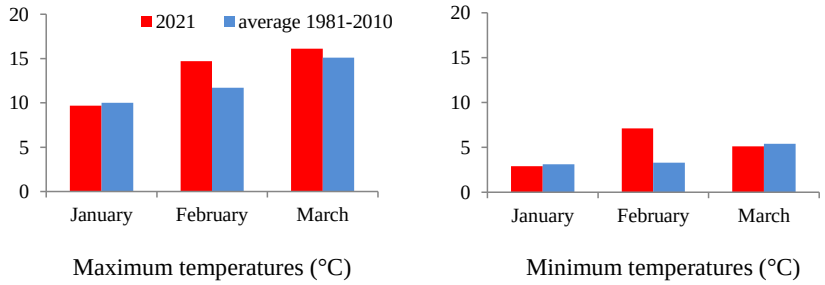


Figure 1
Average maximum and minimum temperatures in the winter of 2021, compared to 1981-2010
Data from Mérignac (Météo France)

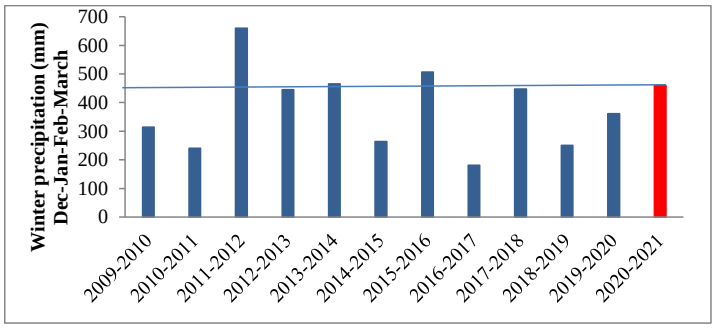


Figure 2
Cumulative winter rainfall (mm) from December 2020 to March 2021, compared to the past 10 years and the 20-year average
Data from Mérignac (Météo France)

Table I
Weather data for 2021, rainfall and temperature (compared to the 1981-2010 average) and hours of sunshine (compared to the 1991-2010 average).
Data from Mérignac (Météo France)

	Sunshine (hours)		Rainfall (mm)		Average minimum temp. (°C)		Average maximum temp. (°C)	
	2021	1991-2010 average	**2021**	1981-2010 average	**2021**	1981-2010 average	**2021**	1981-2010 average
January	**91**	96	**125**	87	**2.9**	3.1	**9.7**	10.0
February	**81**	115	**77**	71	**7.1**	3.3	**14.7**	11.7
March	**133**	170	**17**	65	**5.1**	5.4	**16.1**	15.1
April	**216**	182	**24**	78	**7.3**	7.4	**18.3**	17.3
May	**213**	217	**116**	80	**9.6**	11.0	**19.7**	21.2
June	**241**	239	**141**	62	**15.4**	14.1	**25.9**	24.5
July	**197**	249	**43**	50	**16.3**	15.8	**25.7**	26.9
August	**237**	241	**29**	56	**15.4**	15.7	**25.9**	27.1
September	**186**	203	**76**	84	**15.4**	12.9	**25.6**	24.0
October	**207**	147	**32**	93	**9.4**	10.4	**20.3**	19.4

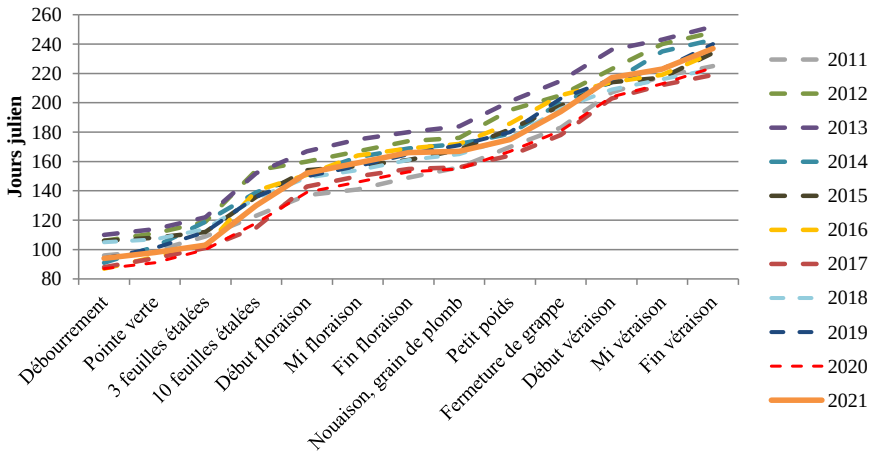


Figure 3
Development of phenological ripeness in 2021 compared to the past 10 years *(Data from SRAL and ISVV)*

A dry and sunny April, marked by a spell of frost that considerably affected the harvest

April started out mild with high pressure and warm temperatures nearing 25°C on the 1st and 2nd. Cooler conditions then set in for ten days across the region, with temperatures significantly below average. A severe frost struck the vineyards during the nights of the 7th and 8th of April. Temperatures fell below -5°C. No appellation was spared, although the damage varied considerably from one estate to the next. A series of low-pressure systems mid-month led to a slight rise in temperatures, although they dipped again to below-average levels from the 25th of April onwards. Despite these large variations, average temperatures were close to normal, unlike rainfall, which was significantly lower than usual for the second month running (Table I, Figure 4).

Vine growth followed the temperature curve, slowing down after frost, accelerating mid-April, then slowing down again towards the end of the month. Major discrepancies in vegetative growth were observed from one area to the next and even within the same area. In plots hit by frost, buds and base buds started to grow around the 25th of April, but cool temperatures at the end of the month slowed their development.

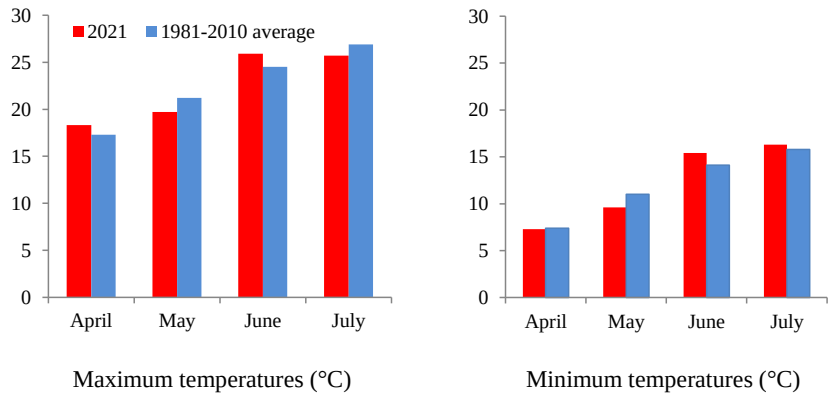


Figure 4
Average maximum and minimum temperatures in the months of April, May, June and July 2021, compared to 1981-2010
Data from Mérignac (Météo France)

Excess precipitation, hail and major swings in temperature: the threat of vine diseases was extremely high in May and June

Following two particularly dry months with average temperatures close to normal, May was characterised by contrasting temperatures and high rainfall. Low pressure driven by the jet stream brought a series of rainy spells. Temperatures were cool, with late frosts on the mornings of the 2nd and 3rd of May, once again causing damage in localised areas. Record lows were observed in Pauillac (1.6°C) on the morning of the 3rd.

Rainy spells were interspersed with warm spells, with "feels like" temperatures reaching 25°C between the 8th and the 10th, and again at the end of the month (Figure 5, Table I). These conditions nevertheless did not result in the rapid growth of the vine shoots and flower clusters. Consequently, the "separate floral bud" stage was observed at the end of the month, whereas in 2020, the flowers were blossoming at that time (Figure 3).

In early June, a cool spring gave way to remarkably warm temperatures. An early heatwave from mid-June onwards helped the flowers flourish. Mid-flowering was observed in reference plots on the 10th of June, i.e. two weeks later compared to 2020 and one week later than the 20-year average (Table II), during a fairly dry spell conducive to quite even fruit-set in the earliest plots. Very high temperatures from the 11th of June onwards led to thunderstorms nearly every day during the week of the 16th, accompanied by record rainfall (Table I, Figure 5). Cumulative precipitation varied greatly depending on the area, with the equivalent of over two months of rainfall recorded in some areas (such as the Graves). This rainfall was sometimes accompanied by localised hail, increasing the loss of yields.

The threat of vine diseases was thus difficult to contain, and winegrowers had to be particularly vigilant to stop the spread of mildew until the end of the month. However, despite frequent showers, the number of sunshine hours in June was similar to the seasonal average, with temperatures slightly above normal (Table I).

Vine growth continued in these unsettled conditions, although the development of the grapes was uneven, depending on the area. At the end of the month, bunch closure occurred in the earliest plots while others were still at the "pea size" stage.

Table II
Mid-flowering and mid-*véraison* dates in 2021 compared to the past 10 years and the 20-year average

Period	**Mid-flowering**	**Mid-*véraison***
2000-2020	4 June	6 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
2019	4 June	9 August
2020	26 May	1 August
2021	**10 June**	**11 August**

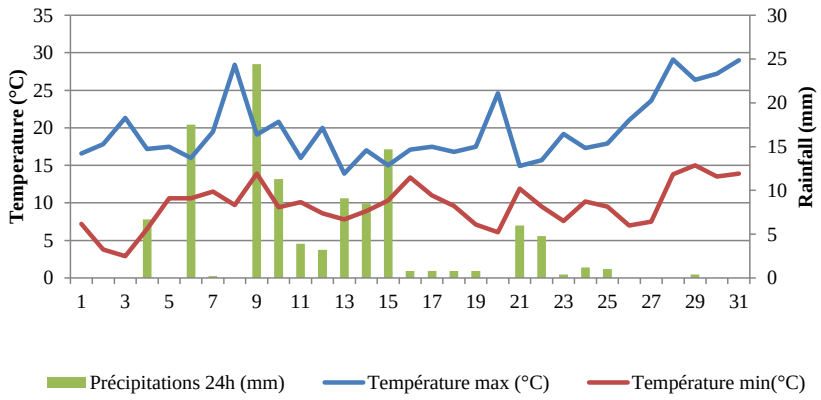


Figure 5
Daily variations in temperature and precipitation in May 2021
Data from Mérignac (Météo France)

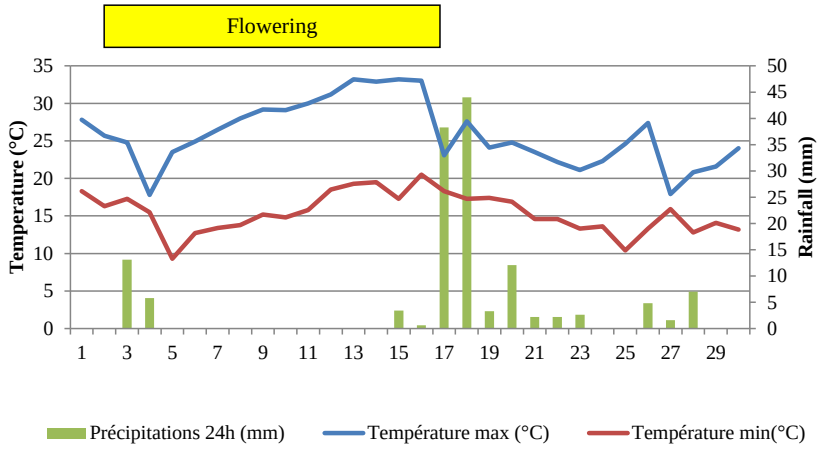


Figure 6
Daily variations in temperature and precipitation in June 2021
Data from Mérignac (Météo France)

At this stage, the first prerequisite for a great vintage, i.e. quick, even flowering, with little* coulure *(shot berries), was mostly fulfilled. In contrast, the second prerequisite, i.e. no rainfall after fruit set, was not met.

A summer of yesteryear: cool and dull in July, low rainfall but still cool in August

Sunny skies with above-average temperatures during the first two days of July gave way to cool, unsettled conditions from the 3rd until the 14th of July, with showers on a near-daily basis. A window of sunshine, from the 17th until the 23rd, sparked hopes of a return to summer weather, but unsettled conditions returned in the last ten days instead. Overall, temperatures in July 2021 were 1 to 2°C below the seasonal average with a 10 to 15% sunshine deficit. Rainfall was spread out over the first two weeks of the month (Figure 7), increasing the threat of vine diseases, in particular mildew on grape bunches.

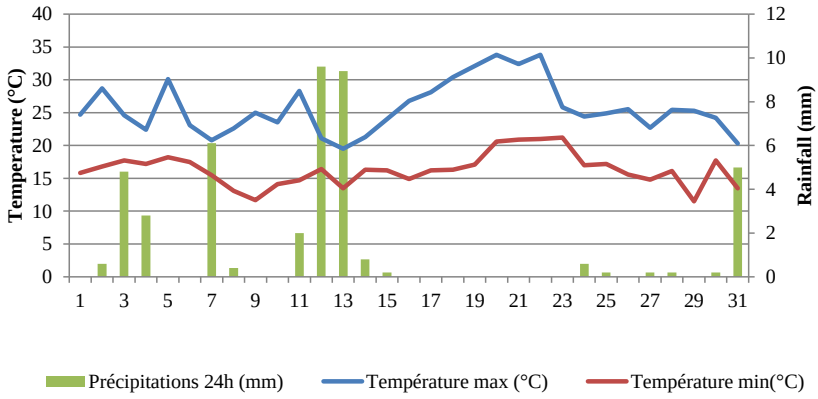


Figure 7
Daily variations in temperature and precipitation in July 2021
Data from Mérignac (Météo France)

These conditions were very favourable to vine and grape growth, although water stress, necessary to stop growth early on, failed to set in during the course of the month. Consequently, with the exception of certain very early-ripening plots, *véraison* (colour change) had still not started in late July.

The very first berries changed colour during the first week of August, in drier yet equally cool and dull conditions (Figure 8). Temperatures remained below average for most of the month. Mid-*véraison* was observed in reference plots on the 11th of August, later than the 20-year average (Table II). It lasted until the end of the month, due to limited day- and night-time temperature variations, but above all due to the delayed onset of water stress. After three very hot vintages (2018, 2019, 2020) marked by heatwaves, 2021 was not excessively hot. On the contrary, July and August recorded below-average temperatures. It was the coolest summer since 2014.

Commenté [CO1]: coquille dans le français

Technological maturity got off to a slow start. The grapes had a particularly high malic acid content at the end of *véraison*.

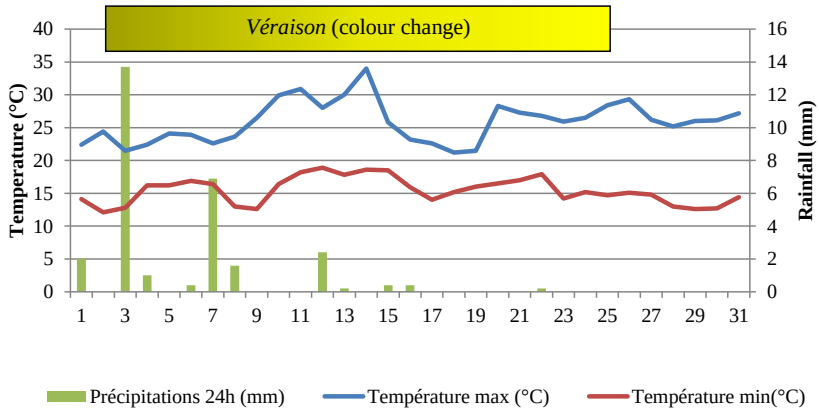


Figure 8
Daily variations in temperature and precipitation in August 2021
Data from Mérignac (Météo France)

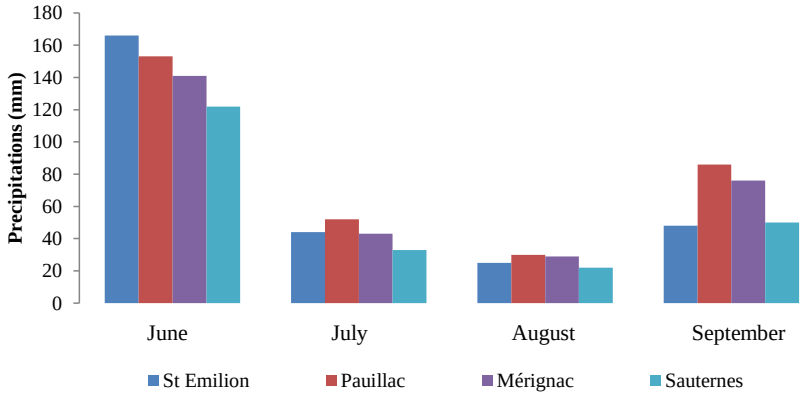


Figure 9
Breakdown of precipitation by region in June, July, August and September
(data from Météo France)

Therefore, a stop to vegetative growth before véraison***, the third prerequisite for a perfect red wine vintage, was not satisfied in 2021. Frequent showers in June and July, with close-to-average or cooler temperatures, favoured vine and grape growth to the detriment of ripening. The berries were larger than average but changed colour slowly.***

More favourable weather conditions in late summer and a dry start to September: the white wine harvest began, and the ripening of the red grapes accelerated

The end of August was cool and dry, with sufficient variations between day- and night-time temperatures, which truly triggered the ripening of the red grapes. From the 30th of August onwards, the weather was ideal: dry and sunny, although not excessively hot, with cool nights. Sugar accumulated slowly in berries that were larger than usual, and the acidity decreased significantly, yet the malic acid content remained higher compared to previous years (Table V).

The dry white wine harvest began on the 28th of August in the Sauternes region, two weeks later compared to 2020, and was well underway throughout the Graves during the second week of September. The absence of excess heat during summer preserved acidity, particularly the high malic acid content, similar to 2014. In a context where water stress did not set in early, the aromatic potential of the Sauvignon Blanc grapes was also perfectly maintained. Rainfall in early September led to fears of a deterioration in the quality of the grapes, particularly in the most vigorous plots, but thanks to the cool nights, they were harvested without any significant damage from grey rot. With lower sugar levels and higher acidity compared to 2020, they are reminiscent of the finest vintages for dry white wines.

The Sémillon grapes were picked around a week later. The clay-limestone terroirs, as is often the case, produced grapes with the finest potential, avoiding the risk of dilution sometimes observed in lighter soils. They reached a good level of ripeness while retaining their liveliness.

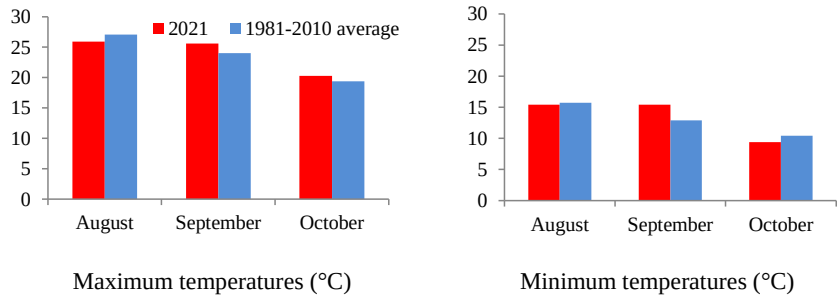
Table III

Harvest dates for dry white wine grapes in the Bordeaux region in 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020 and 2021

	Sauvignon Blanc	Sémillon
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
2019	26 August -19 September	6 - 23 September
2020	14 August - 5 September	27 August - 10 September
2021	**28 August - 18 September**	**5 - 24 September**

Table IV
Composition of Sauvignon Blanc grapes from a plot with limestone soil in the Graves region in 2013, 2014, 2015, 2016, 2017.2018, 2019, 2020, and 2021

	Potential alcohol (%)	Total acidity (g/L)	pH
2013	13	6.4	2.97
2014	12.3	6.9	3.04
2015	13.7	4	3.33
2016	13.4	3.6	3.32
2017	13.2	4.6	3.2
2018	13.7	4.6	3.22
2019	13	4.3	3.27
2020	13.9	4.3	3.28
2021	**12.9**	**5**	**3.23**



Maximum temperatures (°C) Minimum temperatures (°C)

Figure 10
Average maximum and minimum temperatures in the months of August, September and October 2021, compared to 1981-2010
Data from Mérignac (Météo France)

September: alternating rainy spells and record heat for Merlots without over-ripeness

Under the influence of low pressure, many storms blew across the region, interspersed with 3 high-pressure systems characterised by summer-like conditions and day- and night-time temperatures above the seasonal average (Figure 11, Table I). While cloud cover was more prevalent than usual, the air mass was also warmer (Table I). It was one of the third hottest Septembers since 2000.

The Merlots ripened slowly until late September, with no worrying changes to the quality of the grapes, despite their highly porous skins. The anthocyanins accumulated very

quickly at the start of ripening, before slowing down and eventually failing to reach the desired level (Figure 13). The sugar content was lower than usual, while acidity levels were among the highest seen in the past 10 years (Figure 12).

The Merlots were picked from around the 25th of September until the first week of October. The harvest was sometimes rushed due to rainy spells or fear of a rapid deterioration in the quality of the grapes, and did not allow all grapes to reach optimum ripeness.

Late August and September are often decisive for the success of a vintage. While the Merlots benefited from favourable weather conditions, the lateness of the vintage and dull summer meant that the fourth and fifth prerequisites for a great red wine vintage, i.e. a dry period without excessive heat and fine weather during the harvest, were not entirely met in 2021 for this grape variety.

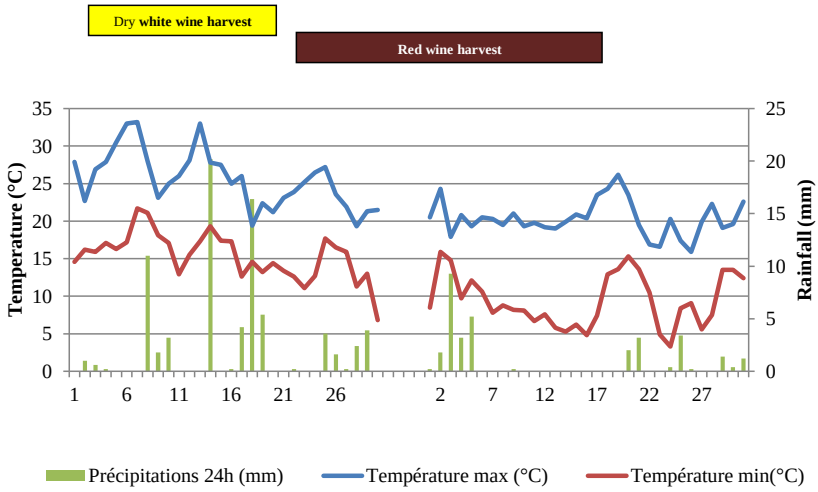


Figure 11
Daily variations in temperature and precipitation in September and October 2021
Data from Mérignac (Météo France)

The sunniest October since 1991, conducive to the ripening of the Cabernet Sauvignons

October 2021 satisfied the final two prerequisites for a great red wine vintage. With night-time temperatures slightly below the seasonal average, and above-average day-time temperatures thanks to exceptional sunshine, the Cabernet Sauvignons benefited from ideal conditions to reach optimum ripeness until mid-October. They were harvested after the Merlots, during a dry spell. As for the Merlots, the balance was significantly different compared to the past 5 years (Table V, Figure 12), with lower sugar levels and higher acidity (particularly malic acid). The anthocyanin content was lower compared to 2020, but greater than in 2019 and 2018 (Figure 13). The grape skins became thinner and more permeable at the end of the season, conducive to good colour extraction.

Table V
Variations in sugar content and acidity during ripening in reference plots

	Weight per 100 berries (g)	Sugar (g/L)	TA (g/L H_2SO_4)
2021			
***31/8* Merlot**	**175**	**183**	**5.9**
Cabernet Sauvignon	**130**	**175**	**8.4**
27/9 Merlot	**176**	**205**	**3.3**
Cabernet Sauvignon	**138**	**205**	**4.0**
2020			
31/8 Merlot	154	216	2.6
Cabernet Sauvignon	106	201	3.4
07/9 Merlot	151	229	2.6
14/9 Cabernet Sauvignon	99	235	3.4
2019			
26/8 Merlot	119	199	4.7
Cabernet Sauvignon	99	177	7
16/9 Merlot	127	244	2.7
30/9 Cabernet Sauvignon	105	233	3.3
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
2013			
2/9 Merlot	113	176	7.1
Cabernet Sauvignon	77	151	9.1
30/9 Merlot	118	219	3.4
Cabernet Sauvignon	119	215	4

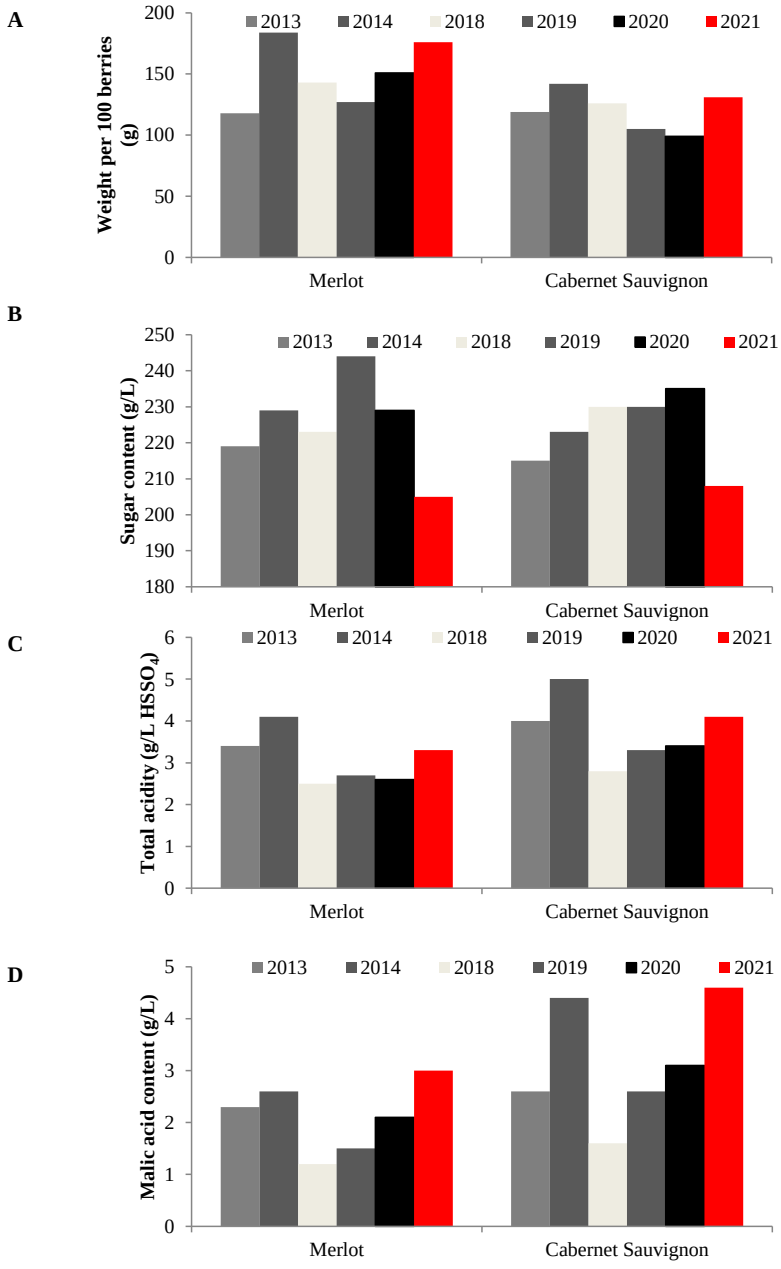


Figure 12

Analytical characteristics of Merlot and Cabernet Sauvignon grapes at harvest time in reference plots in the 2021 vintage, compared with five vintages from the previous decade

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

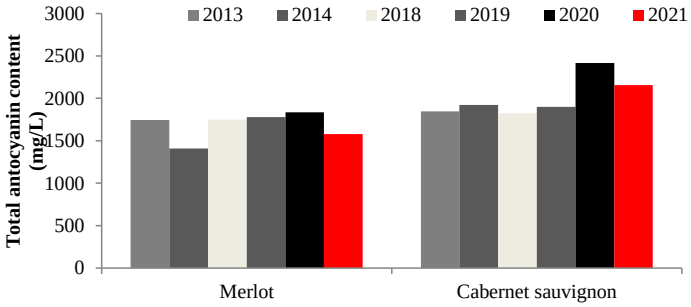


Figure 13
Total anthocyanin content (mg/L) of Merlot and Cabernet Sauvignon grapes in reference plots in 2021, compared with five vintages from the previous decade

Once again, the exceptional Indian summer helped the Cabernet Sauvignon fully ripen and made it possible to harvest in dry conditions, thus satisfying the fourth and fifth prerequisites. However, optimum ripening was not always perfectly achieved in certain plots due to the gloomy summer. It was nevertheless good to very good overall.

The unusual size of the berries is one of the main characteristics of the vintage. At harvest time, the Merlot berries weighed more than in the 5 previous vintages. The Cabernet Sauvignon berries were also heavier compared to the previous two vintages, yet with smaller deviations from the average. The absence of water stress at fruit set and during vine growth partially explains this characteristic of the 2021 vintage.

This phenomenon is accompanied by lower sugar levels compared to previous vintages. Another hallmark of 2021 is higher acidity (both total and malic) of the red wine grapes – the logical result of a cool summer.

Alternating rainfall and high-pressure conditions made it possible to harvest very fine botrytised grapes, although in very low quantities.

The 2021 growing season was particularly challenging for Sauternes winegrowers, with devastating frost in April, above-average rainfall in May, and hail damage in June. In this difficult context, the expected yields were more limited than ever. However, to produce the best botrytised sweet white wine possible requires harvesting in several passes, whose volumes were bound to be incredibly small this year. What was the best strategy to adopt in this context? Giving up on excellence or anticipating this situation and taking the risk to produce delicious wines yet in very low quantities?

Cool temperatures and low rainfall during summer slowed down the development of *Botrytis cinerea*. Mid-September rainfall finally allowed noble rot to spread on perfectly ripe grapes, an essential prerequisite for producing high-quality Sauternes wines. At this stage, the berries were sufficiently sweet and displayed significantly higher acidity compared to previous vintages. A dry, hot spell triggered the concentration of the grapes. The first pass was completed

in early October, before another rainy spell was forecast (Figure 14) and produced very limited yields due to the low proportion of sufficiently concentrated berries. A return to high pressure and northerly winds accelerated the concentration of botrytised grapes left on the vines. The second pass was carried out in mid-October. The lion's share of the vintage, it offered promising quality potential. The third and last passage/pass took place in late October overall, but rarely reached the same concentration or quality.

With the exception of a few estates benefiting from a privileged topography, this year's traumatising growing season drew to a close with historically low yields of sweet white wines for the Sauternes appellation. However, quantity does not go hand-in-hand with quality. A great deal of determination, perseverance and patience were required to produce a very fine sweet white wine in 2021, but it was still possible.

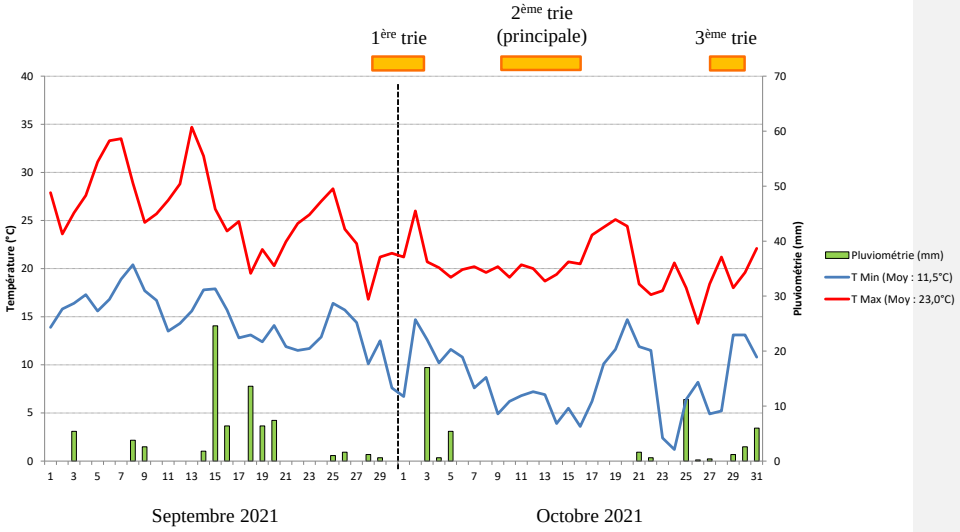


Figure 14

Daytime temperatures and precipitation in September and October 2021 in Sauternes

Chronology of the development of noble rot and the progression of passes (example)

Exceptional dry white wines, rare yet remarkable sweet white wines, and heterogeneous red wines, saved by the Indian summer

Cool summers are generally propitious to the production of fine dry white wines, since they guarantee good acidity and preserve aromatic precursors. 2021 is no exception. The Sauvignon Blanc are particularly brilliant. Despite high levels of malic acid, they are ripe and polished with an intense aromatic expression. The Sémillons grown on lighter soils sometimes appear diluted, while those planted on the best terroirs produced svelte and aromatic wines full of flavour.

Although adverse weather conditions severely impacted yields, some of the 2021 sweet white wines show outstanding quality. In the most rigorous estates, the grapes picked in mid-October produced wines with incredible purity and superb concentration, underpinned by a streak of acidity that makes them all the more brilliant. The ambitious efforts of Sauternes winegrowers and their dedication to producing the best sweet white wines possible given the hostile context is commendable. The result pays tribute to their work.

In 2021, the Bordeaux vineyards saw a return to a long tradition of vintages saved by an unexpected Indian summer. As is often the case, the Merlots suffered the most from the gloomy summer and the delayed halt to vegetative growth, particularly in lighter soils. Despite a high malic acid content at harvest time, the wines showed completely normal pH and acidity levels after malolactic fermentation. They are fruity and deeply-coloured with a smooth texture. The large size of the berries, a distinctive characteristic this year, is often reflected in a lack of concentration mid-palate. The Merlots tend to be fleshier and some of them did very well on the finest Libourne terroirs, where water resources are better regulated. For several years, many commentators have been rightfully concerned about the increase in the alcohol content of wines made with this grape variety. They will be delighted to taste wines that are significantly lower in alcohol this year.

This vintage helps to measure the viticultural progress made by Bordeaux winegrowers. It is safe to assume that some thirty years ago and in the same weather conditions, the Cabernets would have shown intense herbaceous characteristics, which are quite rare this year. The Cabernet Francs on the Right Bank are a great success. High pressure in early October helped to delay the harvest and they fully benefited from this. Aromatic and velvety, they play a key role in the blend.

It was very tempting to harvest the Cabernet Sauvignons early to avoid significant deterioration in the quality of the grapes if winegrowers waited any longer. Their anxiety, which was already palpable given the difficulties they encountered during the growing season, was exacerbated by alarming weather forecasts and the localised onset of grey rot. Fortunately, the arrival of enduring fine weather reassured winegrowers and allowed most of them to wait until the grapes had achieved a good level of ripeness. Deeply-coloured, fresh and aromatic, the Cabernet Sauvignon wines display noticeable tannins and wonderful depth, particularly in the finest gravel terroirs.

As a result of frost, hail, and vine diseases, yields varied significantly from one area to the next, and sometimes within the same estate. They are, on average, much lower compared to 2020. This is what distinguishes the 2021 vintage from a vintage such as the 2014, which was marked by similar weather conditions but produced much higher volumes.

While the red wines do not display the same intensity and concentration as the three previous vintages at the start of ageing, there are some great successes on both banks. 2021 will be remembered as a particularly challenging vintage for winegrowers, whose hard work and efforts were fortunately rewarded by a providential Indian summer.