

WINE Talk: October 2023

The newsletter of Living Wines: Edition 117

Welcome to newsletter 117, the sixth WINE Talk Newsletter for 2023. We hope you continue to enjoy reading them. We certainly are continuing to enjoy writing them!

We have been able to put together 6 packs to offer in this newsletter.

The newsletter also has:

- News about wines that are arriving soon;
- Information about recent arrivals of which we still have stocks;
- Information about the Cadette family wines;
- Information about shipping interstate during summer;
- Part 1 of a story about how grapevines grow, focussing on the photosynthesis process used by most plants, bacteria and seaweeds;
- A story about the Chenin Blanc grape variety

For a full list of wines currently in stock and their prices see:

<https://livingwines.com.au/shop/>

There's an easy way to order our wines. Just send us an email listing the wines and/or packs you would like to order or even just a budget and your style and region preferences. We confirm a plan by return email before processing your order.

If you're not personally known to us or haven't already, please also provide your date of birth so we stay legal (a requirement of Tasmanian legislation). You must of course be over 18 years of age to order.

New Arrivals

We have just released some new wines from the Montanet family (La Cadette, La Soeur Cadette, Domaine de la Cadette, and Montanet-Thoden), whose vines are in the Yonne department in the north of Burgundy but who also have a négoce relationship with vignerons in the south of Burgundy (for Mâcon and Beaujolais appellations). Maybe we are biased but we believe these wines are some of the best-value Burgundy drinking available, and also highly drinkable when young.

Below is a summary of each of the wines plus some additional information about the family and the wines. The prices are prior to any discount should you buy the wines as part of a 6 pack plus we also have a 15% special pack in this month's newsletter.

Wine	Variety	Price
La Cadette Vézelay La Châtelaine 2022	Chardonnay	\$64
Montanet-Thoden Vézelay Galerne 2022	Chardonnay	\$64
La Soeur Cadette Juliéna 2021	Gamay	\$59
La Soeur Cadette Melon 2022	Melon de Bourgogne	\$55
La Soeur Cadette Bourgogne Rouge 2022	Pinot Noir	\$64
La Soeur Cadette Bourgogne Blanc 2022	Chardonnay	\$55

In this release there are now four whites and two reds.

The whites include three Chardonnays - two Vézelay cuvées and a Bourgogne Blanc made with grapes from Mâcon, and La Soeur Cadette Melon, made with locally sourced grapes.

The names of the Vézelay wines - **La Cadette Vézelay La Châtelaine** and **Montanet-Thoden Vézelay Galerne** reflect two of the three prongs of the Montanets' enterprise, now all brought together under the umbrella of the business name La Soeur Cadette and all made by Valentin Montanet, son of the founders. For the wines, even though they come to us under the one La Soeur Cadette banner (which you will see on each back label) we prefer to keep the naming separate, as each represents a slightly different story.

Domaine de la Cadette was created by Jean Montanet and his wife Catherine in the late 1980s when they began to plant vines in their small village of Saint-Père, close to Vézelay. Mentored by Bernard Raveneau and inspired to make natural wine by Marcel Lapierre, from the beginning Jean and Catherine's wines were notable for the drinkability and, in the whites, saline minerality. We're sure their wines are an important part of the story which saw Vézelay relatively recently recognised as a village level appellation, with the same status as Pommard, Volnay and other hallowed names, but only for white wines. It's a recognition of the effect of the Kimmeridgian limestone which features, with clay, in these vineyards, which are not too far from Chablis.



The rocks and soils of Vézelay ([photo borrowed from La Soeur Cadette Instagram account](#))

Wines with the label La Cadette are from these vines that were part of the original Domaine de la Cadette. As well as the La Châtelaine, which we have in this release, another white Vézelay, Les Saulniers, is also part of these original planting as well as the red wines Ermitage and Champs-Cadet.



Harvesting La Châtelaine 2022 ([borrowed from La Soeur Cadette Instagram account](#))

In 2000 Catherine Montanet established a new domaine in partnership with a Dutch friend Tom Thoden, consisting in part of vines which had been in Catherine's family. Called Montanet-Thoden it consists now of 8 hectares of somewhat similar limestone and clay terroir (its clay is slightly heavier than the Domaine de la Cadette soils and so it retains what little water there was slightly more effectively), planted predominantly with Chardonnay, which is used to make the cuvée Vézelay Galerne, which we have in this shipment. The second Montanet-Thoden cuvée, made from Pinot Noir, is Garance.

The third label in the family triumvirate is La Sœur Cadette. As well as now being the name of the umbrella business, La Sœur Cadette (the sister of Cadette) was created as a négoce label for wines made from purchased grapes, for wines made partly with purchased grapes and even for wines made from their own grapes but from both estates (Montanet-Thoden and Domaine de la Cadette), which means neither name can be used because the wine is not 100% from that one place.

Initially this was for wines made with local grapes, most particularly a Melon de Bourgogne we have had many times but, like many Burgundy vigneron, the Montanets have expanded the négoce to other regions as insurance against continuing disasters, most particularly late frosts. The frosts are so much more damaging now because the winters are warmer and the flowering more advanced.

In addition to the Vézelay wines, we also have the 2022 vintage of La Sœur Cadette Melon, also from the same part of northern Burgundy and includes some La Cadette Melon de Bourgogne as well as the purchased grapes. Melon de Bourgogne is a grape which is more commonly found in Muscadet wines from the Loire Valley, but, as its name suggests, was originally grown in Burgundy.

The final white is a Bourgogne Blanc from La Sœur Cadette, made with Mâconnais Chardonnay (from the communes of Uchizy and Peronne). It is made entirely from purchased grapes and is fresh and it very easy to drink.

The Vézelay wines are certified organic. The Sœur Cadette Bourgogne Blanc is organic in conversion and the Melon de Bourgogne is certified organic.

The two reds are La Sœur Cadette Bourgogne Rouge 2022, and La Sœur Cadette Juliéna 2021. Both are négoce wines.

La Sœur Cadette Bourgogne Rouge is from vines in Blanot (between Tournus and Mâcon) and from Saint- Père, where the Montanets are from. As with most red cuvées, approximately 1/3 of the grapes are macerated as whole bunches and the rest are destemmed. It is aged for approximately 8 months in a mix of tank and old barrels.

La Sœur Cadette Juliéna 2021 is the same vintage we had late last year. It was destemmed, then macerated for 12 days with some pumping over but no punch-down. It was aged in a 42 hectolitre foudre that's approximately 15 years old. The result is a light easy-drinking Beaujolais, which is just over 12% ABV.

The majority of the white wines are made in exactly the same way. The only difference is the location of the vines. The grapes are harvested by hand, direct pressed then fermented naturally in stainless steel tanks where the wine is left to mature for about 8 months on lees. The wines undergo light, vegan-friendly filtration with white earth, comprised of microscopic Kimmeridgian shells, which are from the same era as the limestone in the soil. They are bottled with minimal sulphites added.

However, this year the vinification for La Châtelaine is slightly different. About 8% of the wine was aged in two new foudres, one of which from Tonnellerie Rousseau, you can see here.



Inspired by the de Moors and Thomas Pico, Valentin has done this with the intention of keeping the tension in this cuvée for longer. He also started the harvest a little earlier in 2022. He's helped by the beautiful acidity, exhibited by the lower alcohol levels in this vintage. He thinks it will be closest to the vintages of 2011 and 2014. He's excited by it, feeling it's the first "normal" vintage conditions he's presided over, and so are we!

It was wonderful to see him looking so pleased and relieved when we visited just after the 2022 harvest. He had covid during 2020 and then went through a terrifying period for 8 months where he lost his sense of taste and smell, plus felt the brain fog many sufferers of long covid

describe. To have such a wonderful vintage in 2022 has helped him draw a very large line under that grim period and feel confident about what lies ahead.

A new pruning regime, involving two rounds of the vineyard, to help mitigate the frost problem, some experimental changes to the vinification of the white wines, diam corks (!) and the start of a replanting program in the Domaine de la Cadette vineyards to replace some of the oldest vines, now more than 35 years old, are all signs that he's not standing still. We're looking forward to later releases from the 2022 vintage and news of 2023 to see how things continue to evolve.

What's Coming

We will be releasing wines from Loire Valley estates Domaine de la Garrèriere and Vincent Carême very soon – before the next newsletter.

This is also the last reminder / chance to request an offer for Domaine des Cavarodes.

Further down the track but hopefully before Christmas we'll be releasing some ciders and Calvados plus a couple of surprises from Julien Fremont and early in the new year, just after people need it, we will have some Champagne from Roland Piillot and Dominique Moreau (both Piillot and Marie Courtin). We are strongly considering allocating some of these Champagnes so if you definitely want some now is the time to let us know.

Summer shipping solution



As we have done for the last couple of summers, we have switched most of our interstate shipping to Anonymous Wines. This currently includes Melbourne, Sydney, Brisbane/Gold Coast, Northern NSW, much of regional Victoria, and Adelaide.

It's because of a combination of delays and unpredictable weather. Shipping with Aramex already takes several days more than it used to pre-covid so once we get closer to Christmas it will be weeks not days to get most deliveries to their destinations. Because of the delays, an unfortunate increase in breakages and, already, some terrifyingly hot days, we've started a little earlier this year.

We ship pallets to Anonymous Wines' warehouse in Melbourne and then they manage the local and interstate shipping with temperature controlled shipping and drivers who care. We did not have a single loss or breakage last summer. It's much more expensive to ship this way so we have to collect some of the freight cost from you. But we subsidise it by what we would have been charged by Aramex.

The downside though is that, because they do not collect orders in Tasmania we have to accumulate pallets of wine to ship to them. It makes our shipping very lumpy – with approximately two week gaps between the shipping of orders as we acquire enough orders to fill a pallet.

As a guide we are charging \$10 to ship a retail 6 pack to Melbourne and \$14 to ship to Sydney. But, if we're going to charge you freight, we will tell you as part of finalising the order before we invoice you plus, even if we forget to point it out, you will see it on the invoice before you pay so nothing should be a surprise.

For regions not serviced by Anonymous Wines we can continue to use Aramex or Australia Post. However, we won't be shipping any orders with Aramex in December and it feels like we probably won't be shipping much in November either. We trialled a new priority service to a couple of destinations last week which had a 66% success rate (not ideal!). If we eventually feel confident this service is reliable and we can predict how long the deliveries take and so check the weather for the transit period it may be an option for much of November and after Christmas. But it's highly possible we won't be able to ship anything much until February or March when we might get some cooler days.

Pack 1: Cadette New Arrivals (Northern Burgundy and Beaujolais) (15% discount)

Note: 6 Packs Only!



We are delighted to be able to offer this pack of 6 Cadette wines that have just arrived in Australia. We have described these wines earlier in this newsletter. This pack includes two bottles (the first two) from the highest level appellation in the area, namely Vézelay.

The rest are La Soeur Cadette.

The popular Juliéna 2021 is again available. This wine is made with purchased grapes from the famous Juliéna appellation in Beaujolais (it is one of the top ten appellations in Beaujolais). And we are pleased to be able to offer the Melon de Bourgogne again which is always beautiful being made with Melon de Bourgogne grapes which are now very rare in Burgundy, but are a legal grape variety. It's a mix of La Cadette's Melon and grapes they have purchased from the same local grower for many years.

The final two wines are a Bourgogne Rouge (100% Pinot Noir) and a Bourgogne Blanc (100% Chardonnay). The Bourgogne Blanc is from Mâcon in the south and the Bourgogne Rouge has some grapes from the Mâcon region and some that are locally grown.

- La Cadette Vézelay La Châtelaine 2022
- Montanet-Thoden Vézelay Galerne 2022
- La Soeur Cadette Juliéna 2021
- La Soeur Cadette Melon 2022
- La Soeur Cadette Bourgogne Rouge 2022
- La Soeur Cadette Bourgogne Blanc 2022

The RRP for this selection of 6 bottles is \$361.00 but the pack price is only \$309.60. Check with us for the subsidised summer freight charge to your location.

Pack 2: de Moor plus More. (Approx 11% Discount)

Not available if you already have a de Moor allocation.

Note: 3 Packs Only



We almost never get the chance to offer a premier cru wine from the de Moor family in a newsletter pack, but we were able to set aside three bottles this time around to be included as one of three wines in a De Moor Plus More pack. Their wines all come from Northern Burgundy from vineyards near the Chablis appellation or within Chablis as per the Premier Cru Mont et Milieu offered this month.

We have also included the ever-popular sparkling Moussamoussettes (one of the very early pet nats from the Loire Valley), a Bonne Pioche from Guignier in Beaujolais and one of Alice Bouvot's stunning wines made with grapes she bought in Provence and then returned to the Jura to make the wine in her own Arbois winery.

- Alice and Olivier de Moor Bourgogne Aligoté 2021
- Alice and Olivier de Moor Bourgogne Chitry 2021
- Alice and Olivier de Moor Chablis 1er Cru Mont et Milieu 2020
- Mosse Moussamoussettes 2021
- Michel Guignier La Bonne Pioche 2020
- l'Octavin Ivre de Vivre 2021

If you order this pack please include the pack number and exact name as the next one sounds very similar. It will probably sell out quickly so if you have a second preference it may be wise to mention it at the outset. We work our way up our Inbox from the bottom and can take your second preference at the time of receiving your original email if we know you have a Plan B.

The RRP for this selection of 6 bottles is \$524.00 but the pack price is only \$466.35. Check with us for the subsidised summer freight charge to your location.

Pack 3: More de Moor plus More Pack (Approx 13% discount)

Not available if you already have a de Moor allocation.

Note: 3 Packs Only



This pack also contains two de Moor wines with one of them being from the Le Vendangeur Masqué négoce business which they use for wines they have made from purchased organic grapes. They are still amazing wines like everything they make!

We have made the pack up with some great wines from other regions including a Beaujolais from Juliéнас by Cadette, a Beaujolais from Michel Guignier, a Shiraz from the Languedoc made from the idiosyncratic Wim Wageman and a white beauty made by Alice from Octavin using purchased Molette grapes from the Savoie/Bugey. This last wine is otherwise sold out.

- Alice and Olivier de Moor Bourgogne Aligoté 2021
- Le Vendangeur Masqué (de Moor) Bourgogne Blanc 2021
- La Soeur Cadette Juliéнас 2021
- Michel Guignier Granite 2020
- Trois Pattes (Wim Wagemans) Un Coup de Kuq 2021
- l'Octavin (Alice Bouvot) Clé à Molette 2021

If you order this pack please include the pack number and exact name as the previous one sounds very similar. It will probably sell out quickly so if you have a second preference it may be wise to mention it at the outset. We work our way up our Inbox from the bottom and can take your second preference at the time of receiving your original email if we know you have a Plan B.

The RRP for this selection of 6 bottles is \$385.00 but the pack price is only \$338.20. Check with us for the subsidised summer freight charge to your location.

Pack 4: Seasonal Sparkling Pack (15% Discount)

Note: 4 Packs Only



This pack recognises that summer is approaching and as the days get warmer we will all be looking for some sparklers to help enjoy wines like these sitting outside in the sunshine.

We have been able to include 2 bottles of the secret Pet Nat from the Geschickt family made from organic Pinot Auxerrois, Riesling and Muscat d'Alsace. It is a delightful drink that is perfect for drinking on a warm afternoon or as a full stop later in the evening.

And then we have added a wine that needs no introduction as it has been one of our favourites for the past dozen or so years, namely the Mosse Moussamoussettes.

The pack also includes the unique and fabulous Foufou'nette from Sextant which is made from Aligoté grapes where the juice has been enhanced with infused apricots. The inspiration is a Cantillon beer called Fou' Foune.

Finally, there is one bottle of the delicious Peur du Rouge pet nat from Axel Pruger. It's made from Chardonnay and Clairette and has gentle bubbles.

- Geschickt Pet-Nat 2021 **(2 bottles)**
- Mosse Moussamoussettes 2021 **(2 bottles)**
- Sextant - Julien Altaber Foufou'nette 2022
- Le Temps des Cerises La Peur du Rouge Pet-Nat 2021

The RRP for this selection of 6 bottles is \$330.00 but the pack price is only \$280.50. Check with us for the subsidised summer freight charge to your location.

Pack 5: Emergency Christmas Preparations Sale Pack (25% Discount)



This pre-Christmas sale pack is a selection from four of our most interesting producers with the first bottle referencing a racing donkey (Âne de Course), but it is actually a very drinkable wine made from 100% Carignan from very old vines. Then there are 2 bottles of the delectable Mosse Chenin from the Loire Valley.

The Peyras Rosé is a light, quaffable wine despite being made from grapes normally associated with bigger wines – Grenache and Syrah!

The Milan sparkling is delicious, but we need to warn about this sparkling wine. It does have a tendency to froth over when it is opened, so we would advise to chill it down to very cold in an upright position well before opening – and to have a jug or similar handy in case. This is why we have given a 25% discount to make up for any spillage of this wine. It is made from Grenache Noir, Muscat and Alicante.

However, despite this warning all of these wines are great for quaffing and all have been made with great skill.

- Le Bouc à Trois Pattes Quel Âne de Course 2021
- Mosse Chenin 2020 **(2 bottles)**
- Julien Peyras Rose Bohême 2021 **(2 bottles)**
- Milan Pet'Nat Rosé 2021

The RRP for this selection of 6 bottles is \$294 but the pack price is only \$220.50. Check with us for the subsidised summer freight charge to your location.

Pack 6: Damaged Labels (Another Aramex Special Pack) (20% Discount)

Note: 1 Pack Only



Last newsletter had a similar pack where a bottle had broken and the spilt wine had damaged other labels in that box. This month it happened again with boxes that included more Octavin wines and a Le Bouc à Trois Pattes wine. The damage is minimal so

this is a bargain for anyone seeking to try the exciting wines made by Alice from grapes she has picked throughout France and taken back to her winery in Arbois in the Jura to make the wine. (We haven't finished offering our label-damaged wines yet so look out for another bargain next month. Hopefully now we're using Anonymous Wines this opportunity will disappear soon!

A word about the wines. The Vin de France from Bouc à Trois Pattes (Wim Wagemans) is a 100% Syrah that does not have aggressive tannins.

Ganache is a juicy wine made from 100% Grenache grapes.

The Ivre de Vivre has been macerated for a short time and the grapes used are Vermentino, Roussanne and Marsanne. The Clé à Molette is a white wine made from Molette grapes picked in Bugey. Finally, we have included 2 bottles of macerated Muscat. The grapes were picked from vines tended by Vincent Lafage in the Roussillon in Southern France.

- Le Bouc à Trois Pattes Vin de France 2021
- l'Octavin Ganache 2021
- l'Octavin Ivre de Vivre 2021
- l'Octavin Clé à Molette 2021
- l'Octavin Muscat 2021 **(2 bottles)**

The RRP for this selection of 6 bottles is \$408.00 but the pack price is only \$326.40. Check with us for the subsidised summer freight charge to your location.

How grapevines grow

This is the first of two stories that we will write to explain the processes that take place for grape vines (and most other plants and some bacteria) to grow. We hope that this will give you a better idea of why our vigneronns spend so much time, even in the depths of winter, in their vineyards carefully looking after the vines and the soil – both are vital!

We will start with how grapevines get the food they need to grow. Our first look will be the process known as photosynthesis which provides a lot of the food for the vines. This process is very easy to understand at the simple level, but can get quite complicated when you dig down into the minutiae.

We will therefore give you a high-level overview of photosynthesis first and then we will explain the process in much more detail for those of you who like to know why things happen.

We have even included some recent research that suggests plants are very smart in the way they use photosynthesis and may even make it more efficient by using some quantum processes!

What is photosynthesis?

Photosynthesis is one of the most important physical processes on Earth. Not only is it responsible for plants being able to live off sunlight, it also produces vital atmospheric oxygen as a by-product of the process. This is the oxygen that all animals and humans need to live.

Photosynthesis is a process used by most land plants, some sea plants and many species of bacteria to convert sunlight into sugars that are used as food so that they can survive and, in the case of plants, grow.

Before we describe how grapevines grow, we will provide a brief explanation of how energy travels from the sun to earth and what this sunlight comprises, so that you can fully appreciate just how clever is the process the grapevines use to convert the sunlight into sugars for food and to create the colour of their leaves.

What is sunlight?

The light from the sun travels to earth in 8 minutes and 20 seconds through the 149,600,000 kilometres of so-called “empty space” between sun and earth. We say so-called because space is anything but empty. It is crowded with rays from our sun including light rays, cosmic rays and tiny atoms that have been catapulted into space by explosions within the sun.

Space is also crowded with the same objects, including cosmic rays, from all the other suns and other objects in our universe and all the other universes.

And then there is the question of what light really is. We know it is essential for human existence as it helps to keep us warm and provides us with the means to create such essentials as Vitamin D¹.

Due to the work of many clever scientists over the past 200 years, we now know that sunlight actually consists of tiny, tiny packets of energy. One of the first scientific papers that correctly described sunlight as such was one of the five breakthrough publications of Albert Einstein in 1905. The paper was entitled “On a Heuristic Viewpoint Concerning the Production and Transformation of Light²”. It built on the earlier work of Max Planck, James Maxwell, Francesco Grimaldi, Thomas Young and further back in the 17th Century, Isaac Newton and Christiaan Huygens.

Overview of how grapevines grow

Grapevines essentially need sunlight to grow. Why is that? Well, sunlight drives the process we mentioned above known as photosynthesis which sees sugars being created in the leaves of the vines from sunlight. This sugar is then used as a source of energy throughout the vine which enables it to survive and grow.

We are going to explain the start of the process which is the production of food for the vines using sunlight as the starting point. We will explain it at a fairly high level first and then provide much more detail for those of you who are interested in the detail (which we find fascinating).

So, the simple explanation is that the leaves of the vines create molecules of sugar (glucose). In order to do this the leaves must “assemble” the right components which are carbon dioxide (of which there is more than enough in the atmosphere), water (in the case of the leaves they get this from the soil in which they grow – see more detail below) and sunlight which travels from the sun as tiny packets of energy called photons.

The chemical reaction that occurs within the leaves of the vine can be written as follows.

Carbon dioxide + Water + Sunlight ———> Glucose + Oxygen

The chemical formula is:

6CO₂ + 6H₂O + sunlight ———> C₆H₁₂O₆ + 6O₂

On the right-hand side of the equation is glucose (C₆H₁₂O₆) which provides the grapevines with energy. Also on the right-hand side are 6 molecules of oxygen which is released back to the atmosphere, thus helping to maintain the amount of oxygen that we need to breathe!

¹ Ultraviolet light from the sun, when it hits our skin, interacts with a molecule in our skin, transforming it into a different molecule called cholecalciferol, also known as Vitamin D3.

² Einstein, Albert (1905) On a Heuristic Viewpoint Concerning the Production and Transformation of Light. *Annalen der Physik*. Vol 17, 132-148.

Put simply, if plants stopped performing photosynthesis, humans would not be able to breathe oxygen!

Notice also that the carbon dioxide (6 molecules of CO₂) is converted into glucose and the water also makes its hydrogen atoms available to make the sugar/glucose. Some of the energy from the sunlight photons is needed to break up the molecules of carbon dioxide and water.

The water gets to the leaves through the “xylem” which is like an artery from the roots of the vines that runs all the way to the leaves distributing vital elements such as water, potassium and other elements that are required for growth.³⁴

This has been the very simple explanation of the process that occurs within the leaves of grapevines and many other plants. But we have not delved into the more detailed aspects of the process such as how the water molecules are split apart to make the hydrogen and oxygen atoms available, what is created apart from the sugar molecules, what the role of various enzymes in the grapevines is and why those enzymes could stop carrying out their vital role if we don't get the ever increasing atmospheric temperatures under control.

Leaf Structure

To understand the detail of photosynthesis it helps to understand the structure of leaves in plants such as grapevines (although what you are about to read applies to most leaves in most plants). We will describe the most important parts of the leaf and then follow these descriptions by telling you which photosynthesis processes occur in these leaf parts.

The main components of grapevine leaves are:

- Chloroplast
- Chloroplast membrane
- Thylakoids
- Granum
- Lumen
- Chlorophyll
- Stomata
- Stroma

Grapevine leaves are flat and quite large in order to capture as much sunlight as possible. However, because of the vigorous vine growth that grapevines experience, the leaves can become stacked vertically thus shading the leaves on the bottom of the vine and starving them

³ Tyree MT, Zimmermann MH. 2002. *Xylem structure and the ascent of sap*. Springer-Verlag Berlin Heidelberg, Germany.

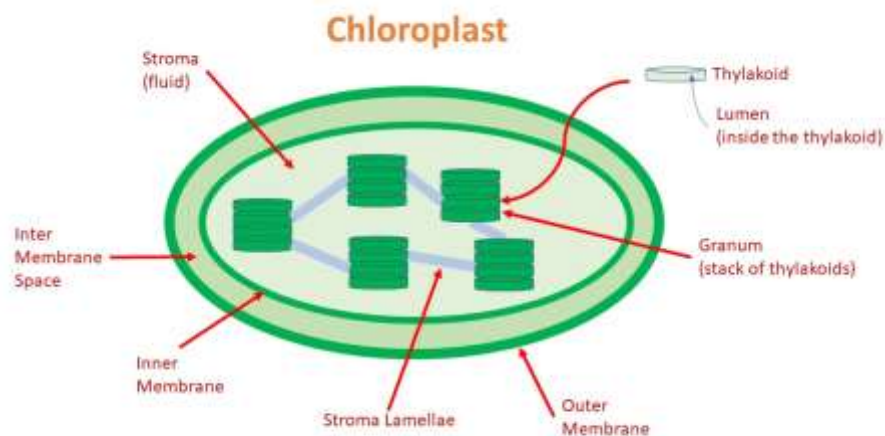
⁴ Williams LE, Phene CJ, Grimes DW, Trout TJ. 2003. *Water use of Thompson Seedless grapevines in California*. *Irrigation Science* 22:1–18.

of the all-important sunlight. This is one of the reasons why vignerons spend so much time carefully pruning.

We will now look at the components of leaves in detail so that the way the leaf manages to absorb the light energy and create the sugar makes sense.

Chloroplast

The chloroplast is found in most plant leaves and the grapevine is no exception. It is found within the mesophyll of the plant cells. It is known as an “organelle” as it has a special function within the mesophyll and photosynthesis cannot occur without it.



Thylakoid

Within the chloroplast are tiny “sacs” called thylakoids which help carry out some of the most important processes of photosynthesis (see below).

The thylakoids are found inside the chloroplast floating in a liquid called stroma which fills the space inside the chloroplast. Inside each thylakoid there are many molecules of **chlorophylls** that are capable of capturing the light energy from the sun and using that energy to carry out part of the photosynthesis process.

Granum

The thylakoids described above are stacked on top of each other and each stack is called a granum.

Lumen

The lumen is located within the thylakoid and is the place where the light-dependent processes of photosynthesis take place, making it a vital part of the overall process. It is here that oxygen is produced by breaking down carbon dioxide using energy from the light photons. The carbon

produced by breaking down carbon dioxide into carbon atoms and oxygen atoms is used to create new molecules.

Chlorophyll

Chlorophylls are the pigments inside the thylakoid that are responsible for absorbing the light photons. The main chlorophyll found in plants is known as chlorophyll-a, but there are also others that are capable of capturing the light energy.

Chlorophyll-a absorbs light within the violet, blue and red wavelengths. Notice that green is not absorbed by chlorophyll-a, instead it is reflected thus making the leaves appear green. In low light conditions some plants are capable of producing chlorophyll-b which can absorb a wider range of the light spectrum.

Stoma/Stomata

Not to be confused with the stroma, which is the liquid inside the chloroplast, the stoma (plural stomata) are tiny holes in the underside of the leaf which can be opened and shut to allow carbon dioxide to enter the leaf from the atmosphere (for the processes described above) or to expel the oxygen to the atmosphere that is created when the carbon dioxide molecules are split.

Stroma

The stroma is the liquid inside the chloroplast where the Calvin Cycle steps take place. These steps are the non-light dependent steps, that is the steps that are not driven by the energy derived from the light photons.

Stroma lamellae

Stroma lamellae provide structure for the grana, joining them together and providing a pathway for the electrons and protons that flow during the light capture and conversion processes.

Xylem

It also helps to understand the role of the xylem in vines. Its role is to transmit water from the soil, through the roots and up into the leaves where it becomes available to play its part in converting the sunlight energy into sugar.

Phloem

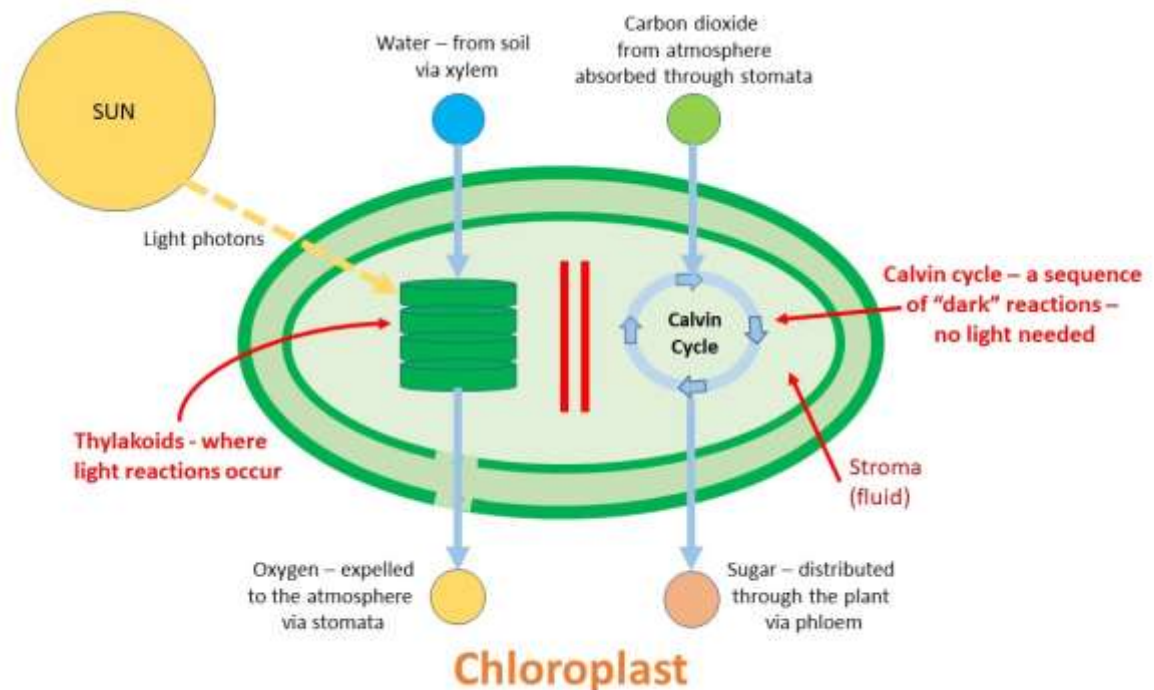
The phloem is defined simply as the tissues of a plant that conduct the foods such as sugars made in the leaves to other parts of the plant.

Photosynthesis processes

There are some quite complicated processes that are implemented by the leaves of the grapevines in order to capture and distribute the sunlight. These processes are usually divided into two distinct parts called:

- Light-dependent processes; and
- Light-independent processes.

As a general rule, the light-dependent processes occur in the thylakoids (see diagram below) and the light-independent processes (called the Calvin Cycle or dark processes) occur in the liquid stroma of the chloroplasts, as shown in the diagram below.



As you can see above, the photons from the sun are captured in the thylakoids inside the chloroplasts that we have explained above.

In the second part (in the next newsletter) we will start looking at the processes that occur inside the leaf, so, before we finish this first part, we will get the light photons into the leaf!

Photons of light are absorbed

Light falling on the leaf is composed of tiny “bundles” of energy called photons that travel from the sun to earth. This was one of the breakthrough discoveries that kickstarted the quantum physics movement as we explained in the section called What is Sunlight? earlier in this story.

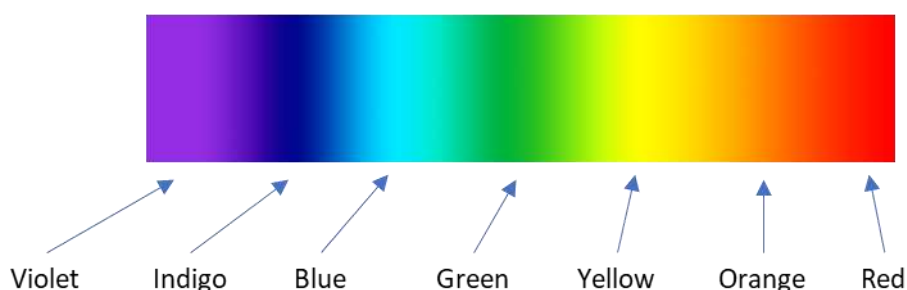
The energy contained in a photon depends on the light “colour” it is derived from.

The light energy reaches the chloroplast in the leaves and is absorbed by the chlorophyll-a pigments in the thylakoid and in the process excites their electrons by moving them to higher orbits further away from the nucleus of the pigment.

This is where some special physics takes place as the energy from the light photons is passed to an area of the chloroplast called the light reaction centre where special chlorophyll-a molecules, called Photosystem II (P680 for short) capture the energy.

The table below is a summary of the different wavelengths of the visible light spectrum:

Visible Spectrum

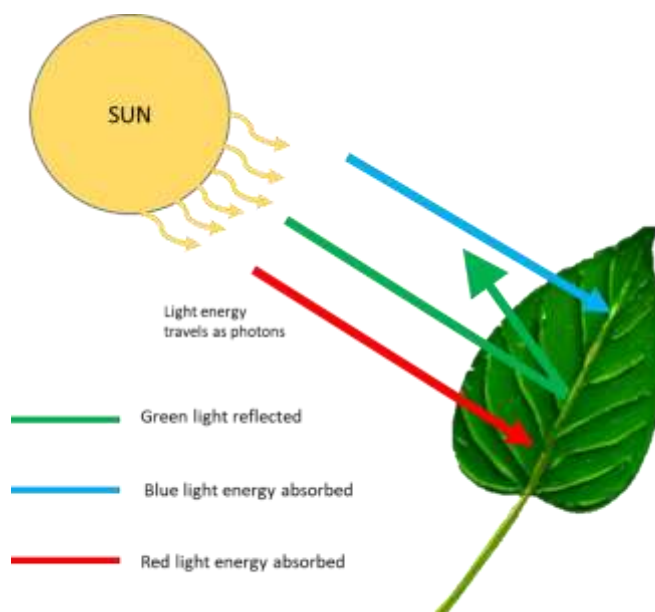


The light spectrum contains the following colours in order of increasing wavelength. Values are given in nanometres which are 1 billionth of a metre.

Colour	Wavelength (approx)	Notes
Violet	380 – 440 nm	Shortest wavelength in the visible spectrum. Sometimes included with Indigo.
Indigo	420 – 440 nm	Colours in the 400 – 500 nm range of wavelengths can be efficiently absorbed and processed by chlorophyll-a molecules.
Blue	440 – 495 nm	See above for Indigo
Green	495 – 570 nm	Green wavelengths are reflected by many plants, so don't get used for photosynthesis. This is why so many leaves appear green.
Yellow	570 – 590 nm	Green and yellow wavelengths can be used by plants that have carotenoids or xanthophylls in their stroma.
Orange	590 -620 nm	Orange and red wavelengths can be efficiently absorbed and processed by chlorophyll-a molecules.

Colour	Wavelength (approx)	Notes
Red	629 – 750 nm	See above for Orange. Longest wavelength in the visible spectrum.

So, we have some photons bouncing off the leaf, to make it appear green when it hits our eyes and other photons being absorbed by the leaf via the chlorophyll molecules in the thylakoids.



Conclusion for Part 1

In the next newsletter we will explain how the water from the soil is passed up through the xylem inside the grapevine to the leaves. Then a series of light-dependent processes are carried out to split the water into hydrogen, oxygen and electrons. A sequence of chemical reactions then occurs and the oxygen is expelled through the gaps in the leaf called stoma into the atmosphere. We will also explain the chemical processes that occur and how the plants use quantum mechanics to make those processes significantly more productive.

We will then explain the subsequent “dark processes” that occur in the Calvin Cycle to finally create the sugars using carbon dioxide from the atmosphere (very good for reducing the amount of carbon) and then distributing this newly created food to various parts of the plant.

We will also explain the role that enzymes play in this process, particularly in making the sugars and breaking the molecules of water and carbon dioxide apart so that the oxygen can be released back into the atmosphere, without which we would not be able to breathe.

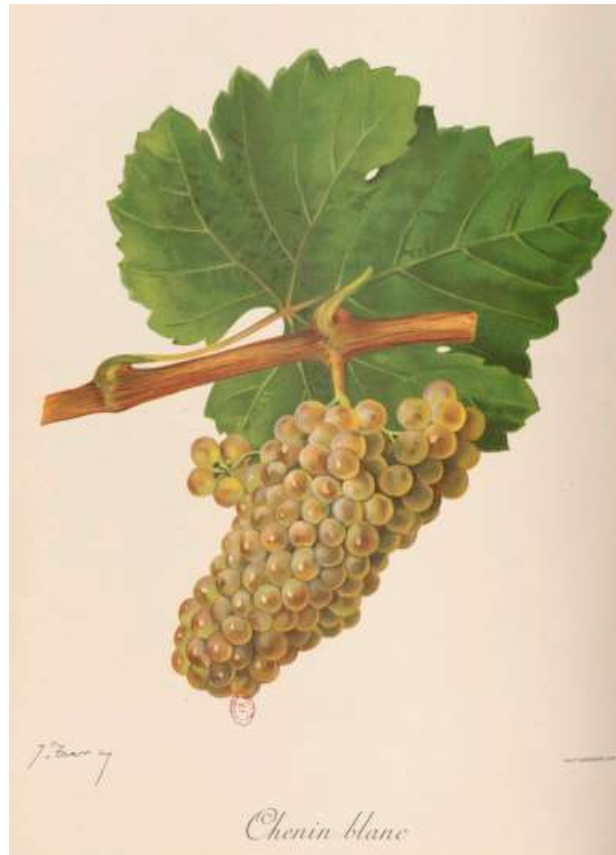
These enzymes are thus vital for our ability to breathe. However, we will also include a salutary warning because enzymes can be “denatured” (ie they stop working) if the temperature gets too high. This is the reason why plants are not found in desert areas such as the Sahara and the

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Atacama, because in these two areas the temperature sometimes exceeds 50 degrees Centigrade which is way above the denaturing temperature for some enzymes.

In fact, if the temperature begins to exceed 40 degrees Centigrade some of the key enzymes that are vital to the photosynthesis process stop working. We will leave this discussion for next month!

Grape variety: Chenin Blanc



The Loire Valley has long been known as an ideal place for the cultivation of grapes and of Chenin Blanc in particular.

In fact, the origins of Chenin Blanc can be traced back to the Anjou region in the Loire Valley, where it was first documented in the 9th century.

In some areas and at some historical times Chenin was referred to as “Plant d’Anjou” or “Pineau de la Loire” or “Le Blanc Nantais”.

It was probably in about the 15th Century that the name Chenin Blanc began to be used. There are some suggestions that it was planted at the Montchenin monastery, near Corméryon in the Touraine region quite close to the city of Tours and so the name began to be used, but we cannot find any hard evidence for this assertion⁵.

Chenin Blanc was fairly tightly held in the Loire valley until the 17th Century when Jan van Riebeck took some cuttings of Chenin Blanc to South Africa where it thrived and became an important grape in that country – a feature that has lasted to the present day.

Mentioned above there is also the oddity, that Chenin Blanc is used to make the famous sparkling wines of Limoux in the south of France. There are records dating back to the 16th Century of sparkling wine being made there (sparkling wine was produced in this region in 1531, by the monks at the abbey in Saint-Hilaire) but no mention of the grapes which were probably

⁵ There are records of still white wine being traded with the Romans during their occupation of “Gaul” according to Livy.

more local varieties such as Mauzac, for example. We believe that Chenin was approved for use relatively recently.

For example, this is a quote from Vialia and Valmorel in 1904 referring to the area just below the city of Angers where Chenin Blanc has been grown for centuries:

Il est plus vrai de dire que c'est le vrai Chenin blanc, qui, aidé du précieux concours de la chaleur solaire, de l'intensité de lumière, de la nature du sol, donne seul, au vin de la Coulée de Serrant, les « qualités exceptionnelles » que l'on retrouve dans son voisinage.

This roughly translates to:

It is more true to say that it is the true Chenin blanc, which, aided by the precious contribution of solar heat, the intensity of light, the nature of the soil, alone gives, to the Coulée de Serrant wine, the "exceptional qualities" found in its neighbourhood.

Chenin Blanc is regarded as a difficult white grape in many countries, including Australia (with the definite exception of South Africa), however in the Loire Valley it reaches the pinnacle of its expression, producing charming, sweet wines and complex dry white wines.

It is acidity that is both the problem and the great promise. If the grapes do not ripen fully then the resultant wine will reflect the high acid content. If the grapes do ripen, however, the acid will still be there but will be balanced by a complex sweetness that complements the characteristic acid backbone.

As with all wine production, the answer seems to lie in yield reduction. Careful thinning increases the likelihood that the remaining grapes will behave as required and pay attention to the sun's rays.

Dry Chenin Blanc tastes of apples and the sweeter wines move toward apricots. A fine example of a sweeter style of Chenin Blanc is the Domaine de la Garrelière Couleurs de Temps which is a slightly botrytised 100% Chenin Blanc. These grapes are grown in the Touraine appellation which is a Loire appellation towards the eastern end of the area regarded as suitable terroir for Chenin. Further east, Sauvignon Blanc is the favoured white variety.

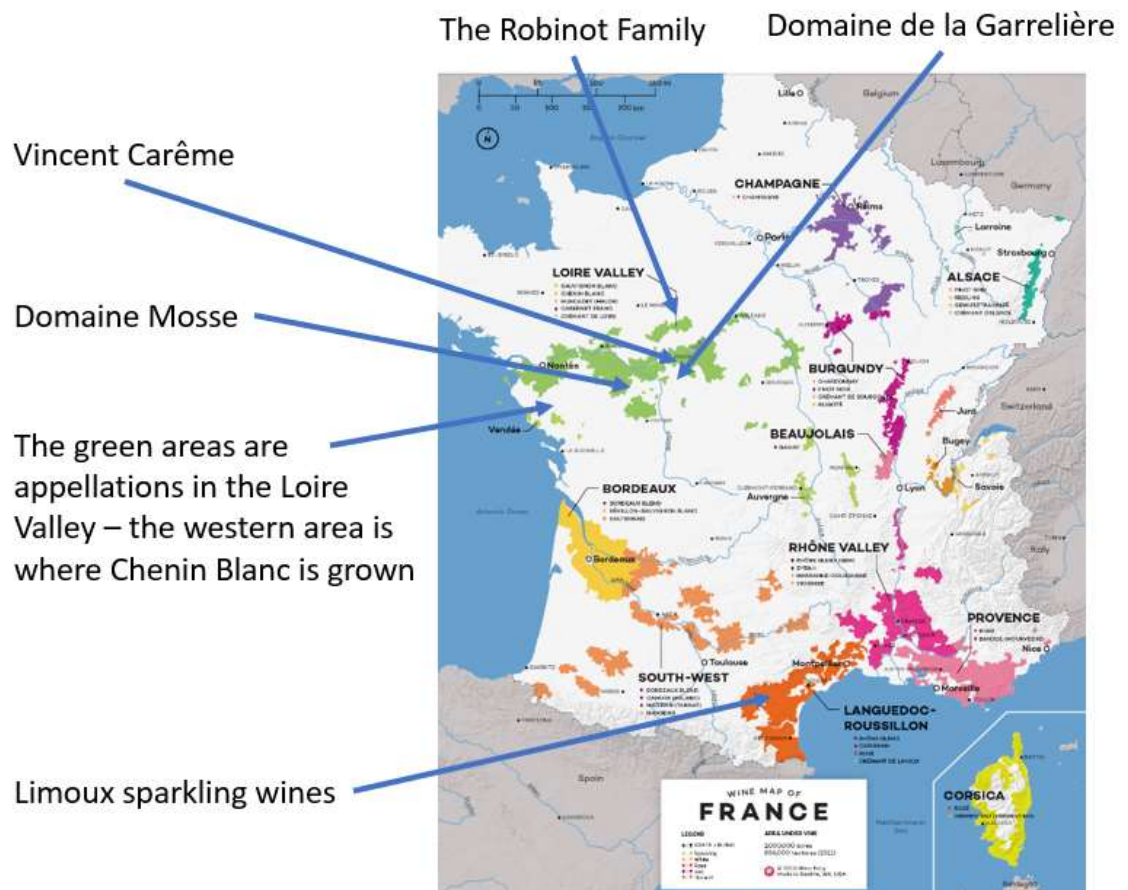
Some of the most typical Chenin Blanc appellations are described briefly in the table below:

Vouvray	Vouvray is one of the most famous Chenin Blanc appellations in the Loire Valley. It is known for producing a range of styles including sparkling, dry wines and sweet wines. We particularly admire the wines of Vincent Carême that are produced here and which we import to Australia. The appellation area lies just to the east of the city of Tours.
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Montlouis-sur-Loire	Montlouis-sur-Loire is another Loire Valley appellation that focusses on Chenin Blanc. It's located near Vouvray and produces a variety of wine styles. We love the wines and the small bar run by Lise & Bertrand Jousset from this area.
Saumur	Saumur which lies on the southern side of the Loire River between Tours and Angers has the reputation of creating excellent sparkling wines from Chenin Blanc, but there are some excellent still wines produced here as well, such as those produced by Domaine du Collier.
Anjou	Anjou, part of the larger Anjou-Saumur region, allows for the production of Chenin Blanc. It produces a range of styles from dry to sweet. We were very fortunate to have approached René and Agnes Mosse very early in our fledgling business to import natural wines to Australia. Their wines have always been exemplary as are the wines being produced by Joseph and Sylvestre, their sons who have taken over the business.
Jasnières	This appellation lies to the north of the city of Tours and lies to the north of the Loir River (notice that there is no “e” on the end as the Loir is a tributary of the Loire) – very confusing! This appellation is where the famous Jean-Pierre Robinot bought his vineyards and where he makes age-worthy white wines of stunning complexity from Chenin Blanc. Another amazing producer in this area is Eric Nicolas from Domaine de Bellivière who also produces great examples of white wines made from Chenin.
Savennières	Savennières is a small but prestigious appellation known for its dry, full-bodied Chenin Blanc wines. The wines from this region often have good aging potential. We, of course, love the beautiful white wine produced by the Mosse family from their plot in this appellation.
Coulée de Serrant	This is a small, private appellation with Nicolas Joly owning the entire area of this vineyard of 7 hectares that is an appellation in its own right. It is only Chenin Blanc that is allowed in this appellation where white wines of the dry and sweet varieties can be produced.
Savennières Roche aux Moines	Roche aux Moines is a sub-appellation of the Savennières appellation given over entirely to Chenin Blanc.
Bonnezeaux	Bonnezeaux is an appellation that permits only the production of sweet wines made from Chenin Blanc with a minimum of 51 grams per litre of sugar.

Coteaux du Layon	Another appellation in the Anjou area that permits only the production of sweet wines made from Chenin Blanc.
Crémant de Loire	A widespread appellation that is designed for the production of sparkling wines that are either white or rosé. The white grapes allowed are Chardonnay, Chenin Blanc and Orbois (aka Menu Pineau). They can be mixed with a variety of common red grapes from the Loire to produce a rosé wine.
Limoux	This one is an oddity because it lies a long way from the Loire Valley in the Languedoc in the south of France. This appellation allows three grape varieties in the still white wines namely Mauzac, Chardonnay and Chenin Blanc. Chenin Blanc is also allowed in a sparkling wine called “Blanquette de Limoux”.

Some of these appellations and a few of our producers are shown on the map below:

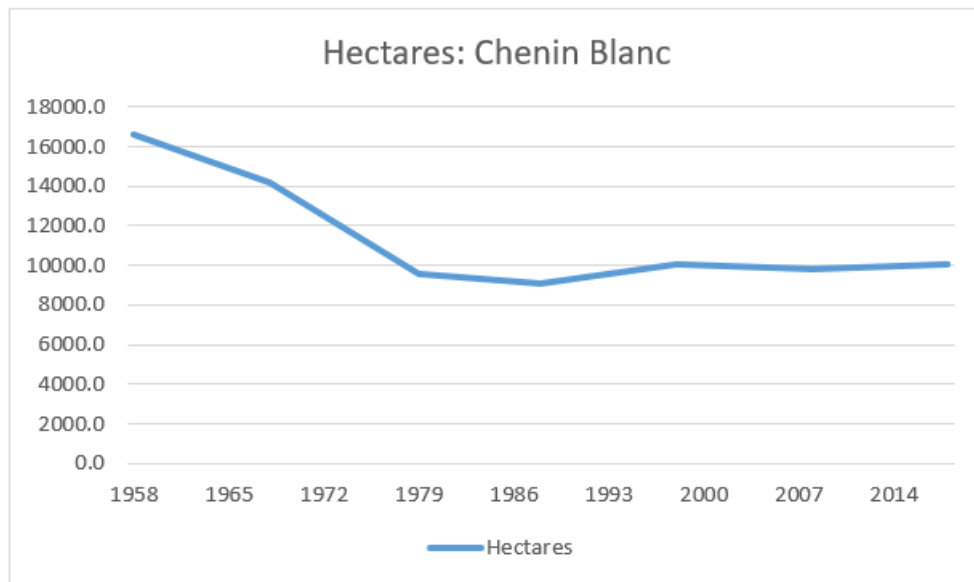


Chenin Blanc has as parents Sauvignon Blanc (no surprise there as it is very common in the area around Sancerre almost right along to the city of Tours) and Trousseau the red grape from the Jura (which is a bit of a surprise).

The graph below shows how the overall plantings to Chenin Blanc have diminished over the past fifty years or so, from a height of around 16,500 hectares in 1958 to around 10,000 hectares currently.

It is interesting to conjecture about what is happening right now with this variety as it appears to us to be undergoing a resurgence due to both a growing interest in white wines and also a growing interest in orange wines and oxidative wines both of which suit Chenin Blanc very well.

The change in the area of Chenin Blanc planted can be seen in the graph below.



However, as can be seen from the graph above, there has been an overall decline in the area planted to Chenin, even though the decline appears to have stabilised.

One of the reasons given for this decline is changing tastes. In the Loire Valley, Chenin has been widely used for making sweet wines such as Quarts de Chaume and Bonnezeaux which are sweet appellations south of the city of Angers (and not far from the Mosse vineyards). As fewer people have been buying super-sweet wines, the crops have diminished in these areas.

Now to what Chenin Blanc looks like!

The Chenin Blanc leaf has five very distinctive lobes with one central lobe and two on each side of the leaf. The lobes are separated by U-shaped “sinuses” that are very distinctive – as can be seen in the photo below.



[Photo courtesy of Vitis International Variety Catalogue](#)

The following photo shows the structure of the bunches of grapes which are reasonably tightly packed. This can sometimes cause problems as the wind can't blow through the bunches. The lack of air circulating through the bunches increases the likelihood of mould affecting the ripening grapes. Chenin grapes also have small spots of brown displayed as can clearly be seen in the photograph below.



Photo courtesy of Vitis International Variety Catalogue

WARNING

Under the *Liquor Licensing Act 1990* it is an offence:

for liquor to be delivered to a person under the age of 18 years.

Penalty: Fine not exceeding 20 penalty units

for a person under the age of 18 years to purchase liquor.

Penalty: Fine not exceeding 10 penalty units

Because of the above penalties we are required by the Tasmanian Government to collect your date of birth from you when ordering via the Internet. We apologise for this imposition. In the past we have been able to accept a declaration that you are over 18.