

## WINE Talk: February 2018

The newsletter of Living Wines: Edition 74

Welcome to edition 74 of WINE Talk! We have just returned from our annual visit to the natural wine salons in Montpellier, Angers and Saumur where many of our producers were in attendance. We have written a summary of these events for this newsletter along with our summary of the 2017 vintage which was fairly dismal in terms of yield, especially in the Jura and some parts of the Loire Valley. Luckily, the grapes that did survive were of excellent quality.

In this edition we also have further information about the imminent arrival of our next container of wines which is currently crossing the Indian Ocean on the way to Melbourne. There are a number of very exciting wines in this shipment.

We also have included the last in our series entitled "It all starts with the soil". In this fourth chapter of the series we explain why we are passionately committed to eradicating the use of synthetic fungicides, pesticides and herbicides from agriculture based on what science is now telling us about the deleterious effect they have on the soil, on the things that grow in the soil and on the people who are required to use the sprays.

We have written an article about how some of our producers are handing over their vineyards to their children or others – that shows how long we have been working in this area!

And we have our normal special packs. This month there are seven packs with some very interesting wines in them, partly due to our need to clear out the warehouse for the arrival of the next container.

In March we will be travelling to Adelaide and Perth to hold tastings. We have set the date for Adelaide which you can read about below, and in the next newsletter we will let you know the venue for the tasting.

We hope you enjoy the information!

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

<http://www.livingwines.com.au/Catalogue/Catalogue.htm>

**There is a link to our order form for these packs and any other wines at the end of this newsletter. But there's no need to use the order form. Just send us an email listing the wines and/or packs you would like to order if that suits you better. We'll confirm the price by return email before processing your order. Please also provide your date of birth so we stay legal (a requirement of Tasmanian legislation.)**

## Winter in the Jura – 2018

This European winter we spent some time in the Jura. It was a bittersweet experience. Most of our suppliers there had a disastrous 2017 harvest with some losing up to 80% of their crops to frost because of a warm winter and subsequent early budding of the vines leaving them exposed to the spring frosts.

The good news this year is that when we arrived it was snowing and it continued to snow throughout the visit. While it sometimes made it difficult to drive (especially in the Haut Jura) it did make the vigneronns happy because prolonged cold weather kills off many of the pests that cause disease in the vineyards.

We stayed in the tiny village of Pupillin which is the self-proclaimed world capital of the Ploussard grape variety (nearby Montigny-les-Asures claims the same for the Trousseau grape, known as Bastardo in Australia). Pupillin lies above the main town of Arbois and as you wind up the hill you reach a sign proclaiming the grape and the winemakers who work with it.



The sign at the entrance to Pupillin – note the “Capitale Mondiale de Ploussard at the top of the sign and the names of Philippe Bornard and Adeline Houillon and Renaud Bruy ère on the right side of the orange-shaded panel.



A display of Ploussard vines at the entrance to the village



They even named a street after the grape!





Looking out over snow-covered Pupillin. That's our hire car in the photo!



The road to Philippe Bornard's house

We spent the time in the Jura working through the range of 2017 wines from a number of our producers including Tony Bornard, Philippe Bornard, Reynaud Bruyère and Adeline Houillon, Alice Bouvet from Octavin and, a new producer, Charles Dagand.

## March Arrivals

Our hope for a late-February arrival of our next shipment was dashed by heavy storms in northern Europe in mid January, which meant it ended up being shipped at the very end of January. We will hopefully have everything available from mid-March though.

To summarise a much more detailed story which was in last month's newsletter, we will have:

### From the Jura

- Some older wines from **Philippe Bornard** in very limited quantities along with the newly-released **Blanc de la Rouge 2015**
- **Tony Bornard's** Ploussard 2015 (it will be such a relief to have some Ploussard again)
- New releases from **Michel Gahier** including a small allocation of 2009 Vin Jaune
- A tiny allocation from Alice Bouvet from **l'Octavin** (a maximum of 24 bottles of each cuvée)

### From Burgundy (mainly)

- From **Alice and Olivier de Moor**, a final delivery of 2015 Bourgogne Aligoté, tiny quantities of 2016 Chablis (which will only be offered to anyone who asks) some Bourgogne Blanc 2016, and some delicious wines made with grapes from the south of France grown by some of France's most renowned vigneron, and made available to help them out after frosts devastated most of their 2016 crop.
- Our annual allocation of **Domaine Derain** and **Sextant** wines made by Dominique Derain and Julien Altaber, including the highly drinkable Allez Goutons, this year in white and red format and an orange sparkling wine from Julien called Skin Bull. Some of the Sextant wines include grapes from other regions but all of Derain is sourced from the estate's own vines.
- A new shipment from **Domaine de la Cadette**, which also means of course **La Soeur Cadette** and **Montanet-Thoden**.

### From the Savoie

- Our annual allocation of **Dominique Belluard's** highly sought-after wines made with Gringet (still and sparkling) and Mondeuse.

### From Alsace

- A new shipment from **Jean Ginglinger** to receive some wines which weren't ready when we did our main order last year.

### From Champagne

- **Champagne Piollot** Les Gravelées Rosé Brut Nature 2012 (our third shipment of this delicious Champagne) as well as new supplies of their current Reserve cuvée. We'll also have a couple of special wines from Roland's wife, Dominique Moreau **Marie Courtin** range of Champagnes, only available as single bottles.

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### From the Languedoc

- Our annual allocation from **Le Temps des Cerises**. Look especially for magnums of a sparkling version of La Peur du Rouge and Brutal 2016.

### From the Normandy

- Ciders and Calvados from **Julien Fremont**.

## Public Wine Tasting in Adelaide – 24<sup>th</sup> March

We're visiting Adelaide late in March not long after the arrival of our new shipment. We're hoping to do a public tasting on Saturday afternoon 24 March featuring some of the new wines from the Jura, Burgundy, Alsace and other regions. We'll have firmer details in our next newsletter but if you're interested pencil in the date.

For trade customers from South Australia who might read this newsletter, if you haven't already heard from us, please let us know if you'd like us to contact you about organising an appointment on Monday 26 March.

## Generational Changes

We've been importing wine now for almost 10 years (our first shipment arrived in September 2008) and worked with many of our producers for much of that time. Time causes its own unique challenges. Apart from the increasing difficulty climbing steep hills or down dimly-lit narrow cellar stairs there's the small matter of trying to remember to "move the goal posts".

You meet a winemaker, walk in a vineyard and he or she tells you the vines are 35 years old. You commit the story to memory then suddenly, or so it seems, the vines have become 40 or 45 years old and you need to shift the narrative along. It's like learning the population of Australia as a school child and constantly having to remember to update the figure because the one you learnt when you are young is the one you most easily remember.

As the vines age inexorably so do the winemakers. Just recently we've witnessed a number of generational changes, some of which are significant, affecting the ownership of the estates we work with.

We mentioned briefly in our last newsletter that **Dominique Derain** has sold his estate to **Julien Altaber** and his business partner **Carol Schwab**. Not that this means Dominique has disappeared. Now officially retired and unofficially dubbed "Director of Social Media" he still comes to all the tastings and still shows the Derain wines when we visit the cellar.

The current plan is that all the estate-owned wines will be labelled Derain and all the négociant wines, where Julien buys the grapes, will be Sextant. We look forward to seeing how they evolve. In the meantime, Dominique seems to be having lots of fun enjoying the freedom of handing on the reins. He's recently been in Chile sharing his travels via his Instagram account @derain3753.

The photo below taken in the new Domaine Derain cellar, which is virtually across the street from the old one, shows the whole team – Dominique, Carol and Julien.



The changes Chez Bornard are substantial too. The two domaines Philippe Bornard and Tony Bornard have been joined together and Philippe has now officially handed over responsibility for the entire estate to Tony.

Once again there's no sign that Philippe has ceased involvement – except the other morning when employees were arriving at 7:30am to be given jobs for the day and it was Tony who had to be there to meet them not Philippe. But ask Tony when a Philippe Bornard wine we've just tasted might be likely to be bottled and there's no question who is still going to make that decision!

The plan for the Bornards is to keep the separate cuvées (Philippe Bornard and Tony Bornard) and labels so to the world everything will seem the same as before - with orange foxes for Philippe and his sister Charlene's design for Tony's. But in 2017, because of the severe frosts, for many cuvées they have had to combine the grapes from Philippe and Tony's vineyards to have enough grapes to make a wine. So, the Ploussard, for example, will have the grapes normally for Phillippe's Point Barre and La Chamade and Tony's Ploussard altogether. The wines made from grapes sourced from both Philippe and Tony's vines will have a unique label based on one from the time of Gabriel Bornard, Philippe's grandfather.

You can see the original label below. It's a wonderful piece of history and a great representation of the pleasure that comes from drinking wine! We're looking forward to seeing the modern version which will be touched up by Charlene and add the names of the generations who have followed Gabriel – Bernard, Philippe's father, Philippe and Tony and Charlene.

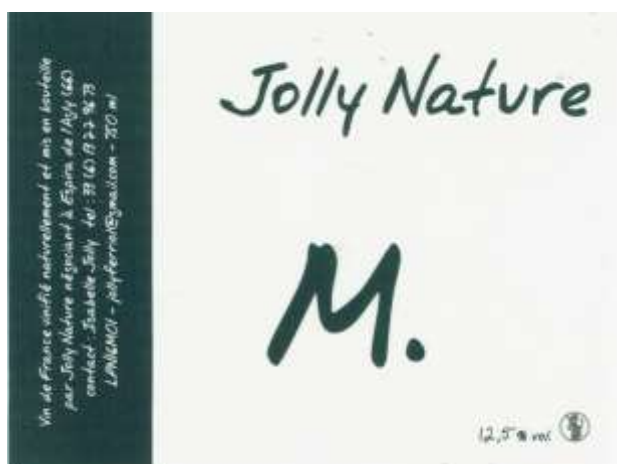




In Bourgogne, for some time now **Valentin Montanet** has been running Domaine de la Cadette and its associated wines (La Soeur Cadette and Montanet-Thoden). And in the Loire, **Joseph and Sylvestre Mosse** haven't taken most of the responsibility at Domaine Mosse for the last couple of years. While they don't mess too much with their mother and father's winemaking for the classic Mosse cuvées they are treading their own paths with some of the cuvées made with the grapes they purchased to be able to make wine after the devastating frosts of 2016. We're especially looking forward to introducing **Travel**, a rosé with an inspired name, made in the Loire with Cinsault and Grenache from Michel Garcia, a vigneron in Tavel.

We're enjoying watching the next generation making their marks even if it makes us feel a little old!

## Pack 1: February Sale Special 6 Pack with massive discount!



This pack is our super sale special for February. It consists of 6 particularly fine wines that we need to move due to the imminent arrival of our next container – we need the space in the warehouse.

**Julien Peyras Gourmandise 2015** – The Gourmandise is comprised of 100% Cinsault (a variety found throughout the Southern Rhone and the Languedoc) from 40 year old vines which have been raised on clay and limestone soils then made into an easy-drinking wine. We are particularly impressed with this release! It took a while to settle but it is in a very good place now. The grapes were picked by hand, as all of Julien's grapes are, and then carefully sorted before undergoing natural fermentation in stainless steel tanks. This is a fresh, lively, juicy, young red which really shows what this grape variety can demonstrate when in the hands of a good winemaker.

**Jolly Nature Vin de France M. 2015** – This is an explosive white from Jolly Ferriol made entirely from the Muscat grape variety that is so beloved in Southern France. The majority Muscat à Petit Grains and the 10% of Muscat d'Alexandrie produce a powerful aroma that is always associated with Muscat. The wine has an intriguing minerality from the schist soils, and bright, clean flavours that finish with a hint of the bitterness that is usually associated with these grapes. This wine has an umami quality that makes it a perfect match for Japanese food such as chawan mushi. Note: Jolly Nature is on the label if Jolly Ferriol have bought grapes from another organic farmer.

**Domaine de la Garrelière AOC Touraine Cendrillaon 2014** – This wine is made from the best Sauvignon Blanc grapes from the biodynamic vineyards that surround the cellar on the hill outside the village of Richelieu. It is made from 100% Sauvignon Blanc. Just 30% of the Sauvignon Blanc spent some time in old oak barrels to provide additional complexity. This is a fascinating wine for us. The first couple of sips mark it as an interesting wine but, gradually, it opens up in the glass to reveal citrus notes and a fine line of minerality as well as a fascinating complexity.

**Domaine Les Grandes Vignes Bulle Nature Rosé 2014** – This a totally natural sparkling wine (the word 'nature' can only appear on a wine label in France if the wine adheres to the strictest conditions) made with only one fermentation in the bottle. This method is known in France as Methode Ancestrale. The grapes have never been sprayed, the wine hasn't been fined or filtered and the fermentation was with natural yeasts. The soil here is

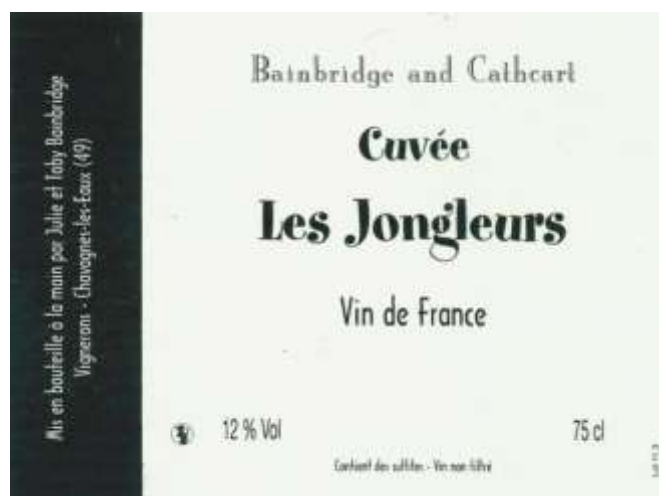
clay and gravel with some shale. The grapes are sourced from two vineyards, La Butte at Faveraye-Machelles which was planted in 2008 and la Noue at the nearby village of Thouarcé. They are planted to both Groslot Noir and Groslot Gris.

**Le Petit Gimios Rouge de Causse 2013** – This wine is named after the terroir on which the vines thrive! The grapes come from an exposed, rocky vineyard covered with low bush vines with thick trunks that help them stand up to the wind that pushes down from the mountains behind. No wires tame the vines because Anne-Marie likes to walk through the vineyard as she chooses. There are at least sixteen different grape varieties planted in this place. But they are randomly planted. There might be a Carignan vine and then two Cinsault vines, followed by an Aramon and then a couple of Grenache. And the vineyard also contains Oeillade, Terret Rose, Terret Noir, Terret Blanc, Syrah, Muscat and Alicante. The grapes are co-fermented to produce this amazing soft, round, subtle red with layers that seems to go on forever. In 2013 approximately 30% of the grapes that made this unique wine were of the Carignan variety.

**La Paonnerie Coteaux d'Ancenis Simplement Gamay 2014** – The Domaine la Paonnerie Coteaux d'Ancenis "Simplement Gamay" 2014 is made from 100% Gamay Noir a jus Blanc. The wine is fermented in fibreglass tanks using the natural yeasts on the grapes and is neither filtered or fined. This is a light, lively delicious red wine that goes beautifully with food such as lamb chops or roast chicken or a robust cheese. This cuvee also has no sulphur added at any stage during the winemaking process.

**The RRP for this selection of 6 wines is \$231 but the pack price is only \$120 including freight to most Australian cities.**

Pack 2: Last bottle pack – Revised January 6 Pack – 20% discount



It happens rarely but last month no-one ordered our single last bottle pack. We took this as a sign that we are meant to enjoy the 2015 Julien Altaber Côte de Nuits Villages which we'd reluctantly included in the pack and have replaced it with another less expensive wine to make the pack slightly less expensive. Hopefully the new version will appeal to someone this month!

**Le Raisin à Plume (Jacques Février) Le Pâtis des Rosiers 2015** – This is one of three wines that we have from Jacques this year made from the Gamay grape variety from vines that range between 25 to 45 years old. This one had two weeks of skin maceration before being pressed and matured for approximately one year in fibreglass tanks. The wine gains its minerality from the mix of old gneiss and schist soils that are mixed with basalt and quartz as well. The wine has serious structure and length with a lovely, savoury finish and will match a wide variety of dishes without overpowering them. It was bottled without the addition of any sulphites and without being filtered.

**Bainbridge and Cathcart Les Jongleurs 2015** – This is a dry Chenin Blanc made from 60 year old vines covering just 0.14 hectare from near Faye d'Anjou where the soil is sandy. Old vine Chenin is a real treat as there is a complexity in the wine that cannot be achieved from young vines. The wine is quite dry and is low in alcohol at only 12 percent.

**Domaine de la Cadette Bourgogne Rouge Champs Cadet 2014** – This red Burgundy is made from 100% Pinot Noir even though small quantities of the César grape are permitted in this region. The Champs Cadet vineyard is one of Cadette's most remote and difficult with lots of stones littering the surface. This is a lovely wine with a velvet texture provided by maturation in old oak barrels, but also with the trademark freshness that makes these natural wines so appealing.

**Mylène Bru Coteaux du Languedoc Far Ouest 2012** – Far-Ouest has a film connection because of Mylène's passion for film from an early age. She loved Clint Eastwood in 'The Good, The Bad and The Ugly' and also admires French New Wave director Francois Truffaut who used the metaphor of the Wild West to shape his films. It is a blend of all the red grapes so it has some Grenache, Syrah, Carignan and Cinsault but might also have a little Marselan and Aubun (an obscure grape from the Vaucluse) depending on the vintage.

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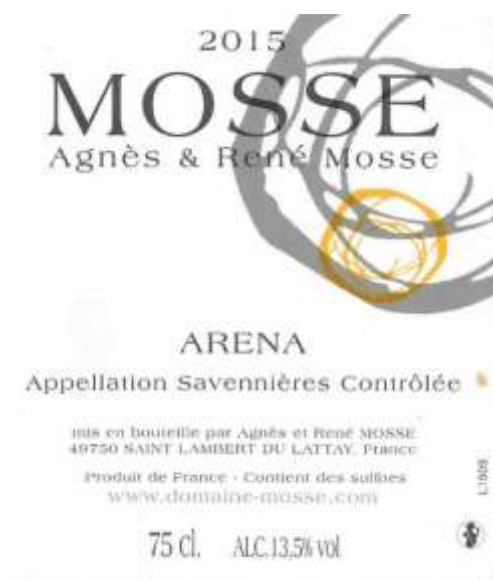
**Fanny Sabre Bourgogne Blanc 2014** – The Fanny Sabre Bourgogne Blanc is always a hot favourite. It is made from 100% Chardonnay sourced from her vineyards around the city of Beaune. The wine has been raised in tanks and has had no additions - she simply allows her wines to ferment using the natural yeasts in order to provide additional complexity. It is an elegant, flavour-packed wine which has seen no new oak. It lingers on the palate and matches beautifully with a range of foods.

**Les Capriades Vin de France Vignnasou 2012** – The Vignnasou is a still Sauvignon Blanc showing 12% alcohol only. It is a lovely wine with a great mouthful and an attractive long lingering finish. The Loire Valley is famous for the quality of the Sauvignon Blanc produced here and this one is no exception. It is quite a rare wine because it is the last still wine made by Pascal and Moses who now make sparkling wines only.

**The RRP for this selection of 6 wines is \$235 but the pack price is \$188 including freight with the 20% discount to most Australian cities.**



Pack 3: The other last bottle pack 6 pack – 20% discount



We have a second last bottle pack this month. It's almost the same as a pack last month for which we had two bottles of each wine. We sold one pack and an individual bottle from what would have been the second pack so have made a slightly revised alternative last bottle pack. As you can see by the prevalence of last bottle packs last month and this month we're desperately making room for our March new arrivals! Boxes with one bottle in them take up far more real estate than we're comfortable with so if you're attracted to this great 20% discount we'll be grateful!

**Fanny Sabre Bourgogne Blanc 2015** – The Fanny Sabre Bourgogne Blanc is always a hot favourite. It is made from 100% Chardonnay sourced from her vineyards around the city of Beaune. The wine has been raised in tanks and has had no additions - she simply allows her wines to ferment using the natural yeasts in order to provide additional complexity. It is an elegant, flavour-packed wine which has seen no new oak. It lingers on the palate and matches beautifully with a range of foods.

**Mosse AOC Savennieres Arena 2015** – The Savennieres appellation occupies a small area (only 150 hectares) just south of the city of Angers. Some of the great wines of France are produced here from the sandy soils (Aeolian sand) that sit over a shale base. This is a dry wine style made from Chenin Blanc from a tiny plot of land that is less than half a hectare - therefore there is very little of this wine available. The alcohol level is 12.5%. The grapes were pressed gently and then allowed to undergo natural fermentation in wooden barrels that has already been used for two vintages and hence imparted no wood flavours to the wine. There is a total of 2 grams of residual sugar which is tiny but so common for these delightful Chenin Blanc wines from the Mosse domaine.

**Domaine Les Grandes Vignes Groslot 2014 Rouge** – This red wine is made from one of the most interesting grape varieties in the Anjou region, namely Grolleau Noir. This variety is descended from Gouais Blanc (the same grape that is a parent of Chardonnay) but another parent is not known. It was originally found in the Charentes region of France. It is very savoury, very pure and has great length. The vineyard is very healthy with clay and

sand soils supplemented by lots of fossil shells that add minerality to the soil. The healthy soils are also a result of the biodynamic methods used to tend the vines and the soil here.

**Bainbridge and Cathcart Highway.8 Vin de France 2012** – The Highway.8 is a 100% Cabernet Franc made in the same genre as the Golleau Noir. It is fresh, lively and eminently drinkable. The Anjou district of the Loire Valley is some of the best terroir for the production of wines from Cabernet Franc. The southern exposure of Toby's vineyards means that the grapes get plenty of sun during the vital ripening time. Remember that it is packaged in clear bottles and is sealed with a crown seal.

**Bainbridge and Cathcart Vin de France Rouge Aux Levres 2012** – This wine is made from the red Grolleau Noir (aka Groslot Noir) grape that is only found at this end of the Loire Valley and rarely seen as a single varietal. The very old vines thrive in red clay and schist soils. The grapes underwent three weeks of whole bunch semi-carbonic maceration (the juice is not drained so both carbonic and alcoholic fermentation occur). Toby does not like to add carbon dioxide so uses a double lidded system in the tank to trap the ambient gas. The wine shows very fresh berry aromas and flavours, soft tannins and lots of juicy goodness. It tastes very fresh. The wine has a little carbon dioxide in it as a preservative so you might detect a bit of 'fizz' at the beginning when the glass is first poured. The vines are very old (at least 85 years and some possibly over 100 years old) giving rise to a beautifully structured wine which exhibits considerable charm.

**Le Raisin à Plume (Jacques Février) A Bout 2014** – We only imported a few cases of this wine due to the fact that the grape from which it is made is somewhat rare. The grape is called Abouriou and it is known for making red wines in the Muscadet area. The vines that Jacques owns are 25 years old and thrive in very old schist soils. Like all grapes, you need to find a winemaker who understands the grape before they can make a good wine from it. Jacques understands Abouriou and the wine he makes is quite delicious. It underwent whole bunch maceration for 15 days after which the juice was transferred to old wooden barrels where it matured for 8 months. It was bottled without filtering and without the addition of any sulphites. The wine exhibits fine tannins and a fullness in the mouth which belies its 11.5% alcohol level.

**The RRP for this selection of 6 wines is \$250 but the pack price is \$200 including freight with the 20% discount.**

## Pack 4: Light reds and dark rosés 6 Pack



Each of the wines in this pack are either light reds or dark rosé wines that make for easy drinking. There are some absolute crackers in this line up – the types of wines that we love to open at any time of the day or night.

**Hervé Villemade Bout de Ficelle 2016** – We have also bought another potentially one-off cuvée from 2016 made with purchased grapes “Bout de Ficelle”, a blend of Gamay (70%), Cabernet Franc (20%) and Côt (10%). The name translates as “bits of string”, a reflection of how it was cobbled together from three different parcels. The Gamay vines, near Mesland, are up to 100 years old. Aged in concrete tanks and bottled at the end of July 2017, it’s another wine that is designed for immediate drinking. It’s supple, with plenty of fruit from the Gamay and just a little tannin from the other two grapes.

**Jolly Ferriol Jolly Rosé 2016** – In 2016 Jean-Luc has made the Jolly Ferriol rosé from 100% Carignan grapes that were fermented and matured in steel tanks. The skins were removed after a short time in contact with the juice but it had gone well past the light pink stage. It therefore is quite dark rather than the characteristic pink colour we are used to with his rosé wines. It has the trademark qualities of a Jolly Ferriol rosé, namely a haunting, compelling nose, great freshness, good acidity and great drinkability. There are aromas aplenty ranging from strawberries to cherries and there is even a hint of anise. This wine is perfect for summer drinking but can be savoured at any time of the year.

**Le Raisin à Plume (Jacques Février) Les Petites Mains 2015** – This is one of several wines we have from Jacques made from Gamay. This wine is light as it was only given two days of skin contact and was bottled after a few months in the tank. It is therefore a lighter style of wine even though the colour is quite ample. Jacques calls it a “red wine in a frame of white”. We look on this as a winter rosé and would serve it slightly chilled. It has a beautiful, lingering flavour and the characteristic minerality and tension found in Jacques wines still exists in this wine despite the short maceration.

**Opi d'Aqui Les Cliquets 2016** – This wine has been made from 100% Grenache Noir which came from a small plot (0.8 hectares) near the town of Vendémian which lies approximately 16 kilometres south-east of Clermont-l'Hérault. The soils here are clay over limestone. The process was started using whole bunch, cold carbonic maceration for 3 weeks. It was then aged in stainless steel tanks for 6 months. It was bottled without fining or the addition of sulphites to preserve its freshness. It is a red wine, but very light in colour. It almost looks like a rosé in the glass, but it has more weight in the mouth.

**Opi d'Aqui Massale 2016** – This light-red, smashable wine is made from a single plot of grapes where the three Grenache varieties (Grenache Noir, Grenache Gris and Grenache Blanc) all grow. Hence this wine is a "mix" of 40% red, 30% grey and 30% white grapes that have undergone cold carbonic maceration for 3 to 4 weeks before being transferred to stainless steel tanks for 6 months to produce a wine that will match with a wide range of foods or which can simply be sipped while sitting outside in the summer sun.

**Sylvain Bock La P'tite Goutte 2015** – The La P'Tite Goutte is an exciting red wine from Sylvain Bock that is light, delicious and smashable. It is made from Grenache which has been fermented using carbonic maceration where the juice has been taken off the must three times to ensure it did not become too tannic. The result is a delicious, eminently drinkable light red wine that provides a window into the more serious Neck cuvée also made from Grenache. Sylvain is an amazing winemaker with an intuitive feel for what will work with the bounty the vines have delivered to him!

**The RRP for this selection of 6 wines is \$220 but the pack price is \$187 including freight.**

## Pack 5: Chenin Blanc 6 Pack



This is an exciting pack of delicious Chenin Blanc wines from various locations in France with most of them from the Loire Valley. There is one very elegant pet-nat called Ancestrale from leading Vouvray producer Vincent Carême as well as one of his top still dry whites and a rare sweet wine (rare in that we only ever buy small quantities). We also included a Chenin with a bit of age from Thierry Michon, a no-sulphites wine from Paonnerie and a delicious, structured Chenin from the Aveyron.

**Vincent Carême Vouvray Ancestrale 2015** – The l’Ancestrale is a natural sparkling wine made in the pétillant style. The fermentation starts in tank and the wine is then bottled while still fermenting (at around 18-20 grams sugar) and then finishes in the bottle without the addition of any sugar and using only the natural yeasts. Vincent actually uses a small heater to keep the temperatures in his tuffeau caves to 14C to ensure that the fermentation continues during winter. He then disgorges (removes the sediment) from the bottles tops then up, seals them and puts them away for two years to mature. Despite this there is a tiny amount of residual sugar (the very hot year meant that there were fewer yeasts on the grapes) which gives the wine a pleasant balance due to the lingering acidity. This is an incredibly elegant wine that displays a distinct minerality and a very fine bead. There are no sulphites added to this wine at any stage in the winemaking process.

**Vincent Carême Vouvray Premier Trie 2015** – Chenin Blanc is a perfect grape variety for producing sweeter styles of wine. The Tendre that Vincent makes is a semi-sweet wine that is perfect for pairing with desserts or cheese. This one, however, is a fully sweet style. “Trie” refers to sorting and for this wine Vincent selects only the most concentrated grapes, picking several times and only picking bunches with at least 30% botrytis. It has 100g of residual sugar and tastes like quinces. It’s a wine that should age for many years, but is also drinking beautifully already.

**Domaine Saint Nicolas Fiefs Vendéens Haut des Clous 2012** – This is the prestige white from this domaine and is made from 100% Chenin Blanc. It has been fermented with natural yeasts then aged for 18 months with 80% old oak and up to 20% of the wine exposed to new oak. The grapes benefit from the schist soils that dominate this area and provide the minerality that is so marked in this wine and the cooling breezes from the Atlantic Ocean which you can see from the vineyard which reduce disease pressure. The



vines are approximately 25 years old. The biodynamic viticulture that Thierry Michon has practised for so long leads to healthier grapes packed with flavour.

**La Paonnerie Coteaux d'Ancenis Pineau l'Ancêtre 2015** – This is a new cuvee for Paonnerie. It is made from 100% Chenin Blanc (which is called Pineau in this area). The wine is made from grapes grown on vines that are over 100 years old in the commune of Saint Heblon which is the commune neighbouring Anetz where the Paonnerie winery is located. The age of the vines means that the yield is a very low 20 hectolitres per hectare. While the yield might be low the benefit is that the grape juice is very concentrated and has high minerality. The wine is fermented naturally and matured in old oak barrel. It is bottled without fining or filtration or the addition of any sulphites.

**Nicolas Carmarans Aveyron IGP Selves 2015** – The Nicolas Carmarans Selves is produced from old vine Chenin Blanc plus some grapes from his newly-planted vineyard on the Selves River slopes that thrives in the cold valley near Campouriez in the Aveyron. This is an unbelievably beautiful wine for those who love the power and elegance of this much sought-after grape variety. When we tried it this year during a lunch at chez Nicolas overlooking the beautiful river that meanders through the steep gorges here we were stunned again by the purity and elegance displayed by this wine.

**Vincent Carême Vouvray Peu Morier 2015** – Le Peu Morier is a still, dry white wine made from old Chenin Blanc vines that thrive in a terroir rich in flint and situated on some of the prize slopes of the famous Vouvray appellation. The wine is matured in oak barrels that have been previously been used for other wines two or three times for a year and is then transferred to tanks for 12 months to ensure that all of the lees are deposited before bottling. It displays very mineral overtones and notes of citrus and white fruits. It is a very complex wine.

**The RRP for this selection of 6 wines is \$346 but the pack price is \$294.10 including freight.**

## Pack 6: Everyday Reds 6 Pack



This pack contains six red wines that represent excellent value for money and which are flexible enough to drink at any time and with a wide range of foods as they are not blockbusters.

**Terres Dorées (Jean Paul Brun) Beaujolais Le Ronsay 2016** – The Jean-Paul Brun Le Ronsay is the same wine as the previously-named Cuvée Première. It is released under the Beaujolais appellation and is 100% Gamay. The change in name has come about as Jean-Paul wanted to more closely identify the wine with the Le Ronsay vineyard from which the wine is made. Jean-Paul does not use the common carbonic maceration technique so widely practiced in Beaujolais, nor does he use the commercial yeast 71B which is also widely used. Instead he uses Burgundian methods of destemming and maceration and the fermentation uses only natural yeasts. This wine is drinking very nicely right now.

**Hervé Villemade Vin de France Bout de Ficelle 2016** – This may be a one-off cuvée. It was made by Hervé in 2016 with purchased grapes because of the lack of grapes in his own vineyard. "Bout de Ficelle" is a blend of Gamay (70%), Cabernet Franc (20%) and Côt (10%). The name translates as "bits of string", a reflection of how it was cobbled together from three different parcels. The Gamay vines, near Mesland, are up to 100 years old. Aged in concrete tanks and bottled at the end of July 2017, it's another wine that is designed for immediate drinking. It's supple, with plenty of fruit from the Gamay and just a little tannin from the other two grapes.

**Stephane Guion Bourgueil Prestige 2013** – This wine is 100% Cabernet Franc and has had some oak treatment (old oak barrels, never new oak) and is produced from older vines than the Domaine (these are up to 80 years old). This is a fine, savoury wine with lovely tannins and good length on the palate. There is a streak of acidity running through this wine that will ensure that it will last for many, many years. It represents excellent value for money and is drinking very well now that it is approaching five years old.

**Causse Marines Vin de France Peyrouzelles 2016** – Peyrouzelles is a red wine blended mainly from Braucol, Duras and Syrah the first two of which are native to the area around Gaillac. Patrice Lescarret also says that this wine has a 'bit of everything' (un peu de tout)

## WINE Talk – the newsletter of Living Wines

including the rare Alicante (a grape with very dark red flesh), the very rare Prunelart (also a dark-coloured grape) and Jurancon! These are all traditional grape varieties of the Gaillac region that Patrice and Virginie are reviving. Peyrouzelles has been a perennial favourite in Australia. The wine is dark and brooding, reminding Australians of their native bigger wines, but also light and elegant on the palate. It is a wine that marries well with lots of dishes without overpowering them.

**Sylvain Bock Vin de France Reviens Gamay 2016** – Reviens Gamay has been a runaway hit whenever we have brought this wine to Australia. We expect this silky Gamay from 2016 to be similarly sought-after. This is a wine made from two different vineyards of Gamay. One is planted on pure limestone and the other on pure basaltic (volcanic) soil. This year he also used 10% of his Grenache in this wine to give it a little more body. The whole bunches were co-fermented using the carbonic maceration approach. This is a very fruity, smashable wine that is drinking very nicely now but will continue to improve for the next two or three years.

**Jolly Ferriol Vin de France Va Nu Pieds 2015** – Va Nu Pieds means “go barefoot” and conjurs up the image of summertime drinking at the beach or barefoot at a barbecue. It is a fresh, bright, lively wine. The grapes (Carignan and Grenache) have undergone carbonic maceration and the wine was then matured in old wooden barrels. The wine is then transferred to tanks to allow the sediment to settle before it is bottled without filtering or fining.

**The RRP for this selection of 6 wines is \$191 but the pack price is \$162.35 including freight.**

Pack 7: Clearing the Decks – Derain & Altaber Burgundy 6 Pack



We're repeating the Derain and Altaber pack from last month to help clear the decks for our new arrivals from these two domaines. The pack consists of three wines from Dominique Derain and three from Julien Altaber. For more information about these domaines you can read the story earlier in this newsletter. It's a mix of reds and whites, mostly appellated as Burgundy but we've also included Julien's delicious 2014 l'Ecume pet-nat, which is a Vin de France.

**Derain St-Aubin En Vesvau 2015** – This delicious Chardonnay is made from vines in the En Vesvau lieu dit which lies on the rocky, sunny slopes of Montrachet. The terroir here is perfect for the production of flavoursome white wines for which the area is rightly famous. The yield is relatively low at 38 hectolitres per hectare. The grapes are picked by hand and placed carefully in small boxes to avoid crushing the fruit. After crushing the juice is left to ferment using the complex natural yeasts that collect on the fruit. The wine is both powerful and elegant making it perfect for aging - however it is also drinking very nicely now.

**Sextant - Julien Altaber l'Ecume 2014** – This is a Vin Mousseux made in the same style as a Pet Nat which we have written about many times before. In 2014 Julien made the wine from a mix of Pinot Noir with a small amount of Aligoté. However what he has come up with is a bright, juicy, lively wine with a lovely mouth-feel and lingering flavour. It is very smashable.

**Derain Bourgogne Les Riaux 2013** – This wine is an entry level Bourgogne red with the vines thriving on the Puligny-Montrachet plains. The grapes are harvested from the tiny Les Riaux vineyard which is close to the village of St Aubin which lies just south of the central city of Beaune. The yields here are painfully low at only 30 hectolitres per hectare so expect this red to have good fruit flavours and good structure. Dominique destems most of the grapes with just a few whole bunches thrown in. After pressing, the juice and skins are transferred to large wooden vats for maceration for up to two weeks before the juice is transferred to old oak barrels for six months of maturation.

**Sextant - Julien Altaber Bourgogne Blanc 2015** – Although it is labelled as a humble Bourgogne Blanc, the vineyards that Julien maintains around Saint Aubin and in the Cote Chalonnaise (near the village of Montbellet), are on very good terroir, similar to the nearby Puligny Montrachet where outstanding white wines are produced. We look forward to the evolution of this wine.

**Derain St-Aubin Le Ban 2013** – The Le Ban is one of the best wines from the Derain vineyards! The 2013 was a tough year but the wines that were produced from a smaller harvest were very good. This wine shows just how good wines can be from the underrated appellation of St Aubin. The vines here thrive on an east facing slope covered in limestone derived clay and gravel. This is a lovely wine with an appealing cherry and strawberry fruit flavour, a core of acidity, great freshness, an underlying spiciness and perfect balance. Great drinking now.

**Sextant - Julien Altaber Monthelie 1er Cru Sur La Velle Rouge 2015** – If you drive south out of Beaune on the D973 you very soon pass through the famous wine villages of Pommard and Volnay and then arrive at Meursault on the left side of the road and Monthélie on the right. The Monthélie vineyards are, in fact, very close to some of the finest vineyards of Volnay! It is definitely an appellation to watch. The soils are excellent, the exposure good and the proximity to the other fine appellations means that great wines are possible here. This is a very fresh and lively wine with good tannin structure, lively acidity and flavours of cherries and red berries. If you are looking for a wine from an emerging and exciting appellation then you should give this one a try!

**The RRP for this selection of 6 wines is \$429 but the pack price is \$364.65 including freight.**



## It all starts with the soil - Part 4

In the three previous articles under this title we examined the different rock types that are found in vineyards and then looked at how soils are created from those rocks by actions including physical weathering, chemical weathering and biological weathering. We then looked at the living creatures that inhabit the soils in vineyards and that work incessantly to improve the nature of the soil and to ensure that vines can absorb the vital elements that are present in the soil.

We also alluded to the fact that we have major concerns about the use of systemic sprays such as pesticides, herbicides and fungicides in vineyards as they reduce the effectiveness of the beneficial biological agents in the soil by both killing the bacteria, fungi and worms that are so important and “chelating” (making unavailable to plants) the vital elements in the soil such as nitrogen, phosphorus and magnesium among others that plants need for growth and health.

In this final article in the series we are going to explore the scientific literature that informed us about the negative effects of these sprays to prove that there is scientific merit in our claims.

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### Introduction

A healthy ecosystem is vital for the production of wines with life, energy, tension and flavour. There is a need to nurture living creatures above the ground and those in the soil to ensure that the vines thrive and the grapes are healthy.

We have written in the past about the importance of ladybirds, wasps, bees, fruit flies, worms and bacteria in creating a healthy environment for vines and yeasts to flourish. We also have written about the need to create a diversity of plant life which, in turn, attracts different birds and insects that can have different beneficial effects on the vineyard.

There have been lots of scientific papers that have alerted us to the dangers that sprays pose to life above the ground. In particular, the damaging effects of neonicotinoids on the health of bee colonies has led to that spray being banned in many countries. And it is not only bees. A recent report from Germany claimed that 75% of all flying insects have been killed by these sprays in the last 27 years<sup>1</sup>. This is a disaster for the agricultural sector because flies, moths and butterflies are just as important as bees in pollinating flowers. Beetles and wasps also act as predators of non-beneficial insects.

However there has not been as much research done on the effect that these sprays have on the all-important life below the ground such as worms, bacteria and fungi.

We will start by examining the damaging effect that glyphosate-based sprays such as Roundup have on the soil and the creatures in the soil.

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<sup>1</sup> Hallmann et al (2017) More than 75 percent decline over 27 years in total flying insect biomass in protected areas. <https://doi.org/10.1371/journal.pone.0185809>.

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### Life within the soil and the association with terroir

The relationship between the soil and the uptake of minerals or mineral salts into vines is a complex one. Plants such as grapevines need sixteen elements to thrive and only three of these (carbon, oxygen and hydrogen) can be absorbed through the leaves of the plant. All others including the vital nitrogen as well as phosphorous, potassium, calcium, magnesium and others must all find their way into the plant through the roots if the plant is to maintain its health.

The problem is that vine roots can't absorb these elements or compounds formed from these elements without lots of help - and this help comes from living creatures carrying out vital work making the soil healthy and getting the elements into a form that can be beneficial for the plants.

To us, this is one of the aspects of terroir that so little is written about. Terroir is often reduced to a discussion of rock/soil types and climatic conditions affecting the vineyard. But it is the silent work carried out below ground by a range of living creatures such as beneficial bacteria, earthworms and mycorrhizal fungi that is so important to plant health.

When we say that this life within the soil is an aspect of terroir that should be given more prominence it is because different vineyards have different concentrations of specific bacteria that carry out specific work in the soil. The concentrations of mycorrhizal fungi with their flamboyant hyphae that form webs of tiny tendrils throughout the soil seeking out beneficial elements for the vines also varies.

And, very importantly many recent studies have shown that varieties of yeast can vary from one end of a valley to another and from one vineyard to the next. Different varieties of yeast produce different polyphenols which in turn play a part in providing flavour and structure to the wine. Therefore, if wine fermentation relies on the indigenous yeasts rather than commercial yeasts, the wine will be a truer reflection of what is happening in the vineyard.

And this is where our thinking has taken us – to the vital role of mycorrhizal fungi and the fact that healthy, living soils are absolutely essential for the transfer of nutrients through the root system and into the plant. Study after study that we have read has confirmed this vital fact<sup>234</sup>.

We are going to explore on of the biggest factors in reducing transfer of nutrients to plants and that is the use of systemic sprays such as pesticides, herbicides and fungicides.

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<sup>2</sup> Cheng, X., and Baumgartner, K. *Overlap of Grapevine and Cover-Crop Roots Enhances Interactions among Grapevines, Cover Crops, and Arbuscular Mycorrhizal Fungi* Pages 171-174 In: *Proceedings of the Soil Environment and Vine Mineral Nutrition Symposium. American Society of Enology and Viticulture, 29-30 June 2004, San Diego, CA.*

<sup>3</sup> Baumgartner, K. 2006. *The Role of Beneficial Mycorrhizal Fungi in Grapevine Nutrition. American Society of Enology and Viticulture Technical Update 1:3.*

<sup>4</sup> R. Paul Schreiner, *Effects of native and non-native arbuscular mycorrhizal fungi on growth and nutrient uptake of 'Pinot noir' (Vitis vinifera L.) in two soils with contrasting levels of phosphorus. Applied Soil Ecology, Volume 36, Issues 2–3, June 2007, Pages 205–215*

We will concentrate on glyphosate-based sprays because they are by far the most common in modern agriculture and are one of the most problematic, especially with the dramatic increase in the volume of these sprays used throughout the world.

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### The problem with glyphosates

A common response we get from farmers and vigneron in Australia when we ask them about their practices is “I am completely organic although I need to use a bit of Roundup for the weeds!”

Well, is Roundup (which is based on glyphosate, but much more dangerous<sup>5</sup>) a problem in controlling weeds and are there any follow-up effects for vineyard managers?

We are going to examine four areas where science says that glyphosates have a deleterious effect on the soil and creatures that live within the soil.

#### Earthworms

Let’s start with earthworms that condition the soil and provide pathways for roots and nutrients to enrich the soil.

The role of bacteria in helping to break down rocks into soil is well known, however the role of earthworms is now receiving the attention it deserves in conditioning the soil for the plants. A recent meta-analysis of the peer-reviewed literature showed that earthworms contribute significantly to the productivity of plants.

The paper by van Groenigen et al<sup>6</sup> found that:

*“on average earthworm presence in agroecosystems leads to a 25% increase in crop yield and a 23% increase in above ground biomass. The magnitude of these effects depends on presence of crop residue, earthworm density and type and rate of fertilization. The positive effects of earthworms become larger when more residue is returned to the soil, but disappear when soil nitrogen availability is high. This suggests that earthworms stimulate plant growth predominantly through releasing nitrogen locked away in residue and soil organic matter”.*

A paper by Gaupp-Berghausen<sup>7</sup> (2015) in a journal in the same stable as the prestigious Nature magazine showed that glyphosate-based herbicides reduced the populations of earthworms in soils sprayed with glyphosates by reducing their capacity to breed.

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<sup>5</sup> Dr Robin Mesnage of the Department of Medical and Molecular Genetics at Kings College in London presented data showing Roundup is 1,000 times more toxic than glyphosate alone.

<sup>6</sup> van Groenigen, J. W. et al. Earthworms increase plant production: a meta-analysis. *Sci. Rep.* 4, 6365, 10.1038/srep06365 (2014).

<sup>7</sup> Gaupp-Berghausen, M. et al. Glyphosate-based herbicides reduce the activity and reproduction of earthworms and lead to increased soil nutrient concentrations. *Sci. Rep.* 5, 12886; doi: 10.1038/srep12886 (2015).

Even more worrying, a paper by Zaller et al<sup>8</sup> (2014) showed that glyphosate usage reduced the interactions between earthworms and symbiotic mycorrhizal fungi in the soil. And, as we mentioned earlier in this article, this reduces the ability of the vine to absorb 13 out of the 16 essential elements that the vine needs for growth and survival.

We even read in the scientific literature about the efforts of earthworms to avoid soil that has been sprayed with glyphosate<sup>9</sup>.

There is also evidence that spraying with glyphosates reduces the reproductive cycle of earthworms<sup>10</sup>. Part of their abstract included the following statement:

*“Reproduction of the soil dwellers was reduced by 56% within three months after herbicide application. Herbicide application led to increased soil concentrations of nitrate by 1592% and phosphate by 127%, pointing to potential risks for nutrient leaching into streams, lakes, or groundwater aquifers.”*

There is also a report by Keddy<sup>11</sup> and others about how earthworms are a harbinger of problems starting to occur in the soil:

*“earthworms increasingly are being considered as sentinels, or biomarkers, of soil health and integrity”.*

## Bacteria

In the previous article in this series we established the important effects of bacteria in the soil especially in breaking down the soil to make important elements such as Nitrogen, Manganese and Magnesium available to the plants that grow in that soil. We are therefore wary of anything that is used in agriculture that diminishes the effectiveness of bacteria in the soil.

In an important paper published by a group of German scientists (Shehata et al) they demonstrated that glyphosates have very little effect on bacteria that are dangerous for humans such as Salmonella but do have a deleterious effect on bacteria that are beneficial to humans<sup>12</sup>.

*The use of glyphosate modifies the environment which stresses the living microorganisms. The aim of the present study was to determine the real impact of glyphosate on potential pathogens and beneficial members of poultry microbiota in vitro. The presented results evidence that the highly pathogenic*

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<sup>8</sup> Zaller, J. G., Heigl, F., Ruess, L. & Grabmaier, A. Glyphosate herbicide affects belowground interactions between earthworms and symbiotic mycorrhizal fungi in a model ecosystem. *Sci. Rep.* 4, 5634, 10.1038/srep05634 (2014).

<sup>9</sup> Verrell, P. & Van Buskirk, E. As the worm turns: *Eisenia fetida* avoids soil contaminated by a glyphosate-based herbicide. *Bull. Environm. Contamin. Toxicol.* 72, 219–224 (2004).

<sup>10</sup> Gaupp-Berghausen, Mailin & Hofer, Martin & Rewald, Boris & Zaller, Johann. (2015). Glyphosate-based herbicides reduce the activity and reproduction of earthworms and lead to increased soil nutrient concentrations. *Scientific Reports.* 5. 12886. 10.1038/srep12886.

<sup>11</sup> Keddy, C.J., J.C. Greene, and M.A. Bonnell. 1995. Review of whole-organism bioassays: soil, freshwater sediment, and freshwater assessment in Canada. *Ecotoxicology and Environmental Safety*

<sup>12</sup> Shehata et al (2012) The Effect of Glyphosate on Potential Pathogens and Beneficial Members of Poultry Microbiota In Vitro. *Current Microbiology.*

*bacteria as Salmonella Entritidis, Salmonella Gallinarum, Salmonella Typhimurium, Clostridium perfringens and Clostridium botulinum are highly resistant to glyphosate. However, most of beneficial bacteria as Enterococcus faecalis, Enterococcus faecium, Bacillus badius, Bifidobacterium adolescentis and Lactobacillus spp. were found to be moderate to highly susceptible.*

### Mycorrhizal fungi

Mycorrhizal fungi play a number of vital functions in the vineyard, in fact they colonise the roots of more than 80% of plants that grow on this planet. These tiny fungi are able to send out small tendrils called hyphae that locate elements in the soil such as Nitrogen and Phosphorus which are vital for plant growth and help transmit these elements in various forms into the plant. They do this by burrowing into the root of the vines and sending out the hyphae into the surrounding soil.

The relationship between plants and these fungi is a fascinating one because it is symbiotic. The vines receive the vital elements they need through the actions of the fungi and they, in turn, send sustenance such as glucose and fructose to the fungi.

A paper by Druille<sup>13</sup> and others in the Applied Soil Ecology journal found that glyphosates reduced mycorrhizal fungi viability and concentration in the soil.

### Grapevines and other plants

One of the most common complaints we hear about modern agriculture is that “things don’t taste as good anymore”. This applies to potatoes, cherries, carrots, beans – in fact just about anything that grows in the soil. It also applies to grapes.

So what has happened over the past fifty years to bring about this decline in flavour. There are three major problems that contribute. The first is the excessive use of irrigation in many parts of the world that forces the plants to grow quicker and not giving time for all the flavour compounds to develop fully. The second is the use of nitrogen-based fertilisers which damage the fungi in the soil and hence reduce the uptake into plants of elements that are essential for flavour development. And the third, of course, is the widespread introduction of systemic sprays during that time.

We will just concentrate on the sprays because there is direct evidence concerning the problems they cause.

We have already covered the problems caused by the effect of glyphosates on the important living creatures in the soil. But there is another problem. Glyphosates are chelators. What this means is that the compounds in glyphosate actually “bind” to elements such as magnesium, manganese, iron and calcium in the soil and make them unavailable to plants.

We have read many studies of this effect and one published in the European Journal of Agronomy had this to say:

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<sup>13</sup> Druille, Magdalena & Omacini, Marina & Golluscio, Rodolfo & CABELLO, R.A.. (2013). Arbuscular mycorrhizal fungi are directly and indirectly affected by glyphosate application. *Applied Soil Ecology*. 72. 143-149. 10.1016/j.apsoil.2013.06.011.

*"These results suggested that glyphosate may interfere with uptake and retranslocation of Ca, Mg, Fe and Mn, most probably by binding and thus immobilizing them. The decreases in seed concentration of Fe, Mn, Ca and Mg by glyphosate are very specific, and may affect seed quality<sup>14</sup>."*

Plants need compounds based on these important elements for growth and for the development of flavour compounds. For example, manganese is required for at least 25 enzymes that are used in processes such as photosynthesis and nitrate uptake. However, if manganese is chelated by glyphosates it is no longer available to the plant.

It is no surprise to us that glyphosate behaves this way since it was originally patented as a chelator<sup>15</sup>. There have been many studies relating to the chelation effect of glyphosates all of which contribute to lack of flavour in grapes, lack of immunity of grapevines to disease and lack of micronutrients required for the overall health of the plant.

There is also another problem starting to be found in grapevines – they are not lasting as long as they used to! We work with producers throughout France who still tend vines that are over or getting close to 100 years old. As the vines get older, the yields are reduced but the quality of the few grapes that are produced is often exceptional.

However, a number reports are starting to emerge of grapevines that are close to fields where sprays are used on other crops are seeing reduced lifespan of the vines. This requires more research to provide more evidence but it will be an issue that we will follow up as further papers are published on the topic.

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### Conclusion

This article only scrapes the surface of the research that is being carried out on the importance of preserving and caring for the soil in which our plants grow. We hope we have provided some warnings about the use of chemical sprays in the vineyard and given you some insight into why we believe so strongly that systemic sprays should be removed from our agricultural landscapes.

And we haven't even delved into the effects that these sprays have on human health!

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<sup>14</sup> Cakmak et al, *Glyphosate reduced seed and leaf concentrations of calcium, manganese, magnesium, and iron in non-glyphosate resistant soybean. European Journal of Agronomy. 31 (2009) 114–119.*

<sup>15</sup> *Patented metal chelator in 1964 by Stauffer Chemical company (US 3160632 A - filed: January 30, 1961; awarded: December 8, 1964.)*

## How to order

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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*

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