

INTERVIEW

“Producers invest heavily in oenology but very little in viticulture”

In a wide-ranging conversation with **Ruma Singh**, soil experts Lydia and Claude Bourguignon, emphasize the importance of healthy soil in producing good wine

Lydia and Claude Bourguignon are world famous soil microbiologists. They fly around the world advising vineyards on which grapes would grow best on their soil. Rumour has it that they have set some of the world's most famous vineyards, from Burgundy to Napa, on the right path.

In the early 2000s, putting their own words into action, the Bourguignons bought an abandoned seven hectare plot adjoining a forest near Cahors. They restored the soil and planted vines and indigenous grapes following biodynamic principles. Working the vineyards themselves with their microbiologist son, Emmanuel, they make just two wines in

tiny quantities. The white, Néphèle is made from Sauvignon Blanc, Sauvignon Gris and indigenous grape varieties, and the red, Nigrine features Côt, Cabernet Franc and indigenous grapes such as Négrette and Prunelart.

During the interview with both Claude and Lydia, Claude used an interesting analogy to describe the importance of soil in the production of wine. The winemaker, he said, was like a conductor playing a concerto (the wine); the grapes, the climate and the soil had to be in harmony to create a perfect whole. If the drums were too loud, or one part of the orchestra dominated the other, the result would be cacophony.

Claude and Lydia explain their principles of soil mangement to a group of interested wine professionals at ProWine in Mumbai



Excerpts from the interview

In vineyards around the world, why is the health of vineyard soil given comparatively less attention than winemaking?

We don't pay attention to the importance of vineyard soil and its effect on wine quality because oenology is very powerful. A lot of wine-makers think that giving importance to soil is “just bullshit” (to quote a California expert!).

Today many producers believe everything can be fixed in the winery – in fact, there are over 300 ways to fix viticultural issues during winemaking, from optical sorting machines that remove undesirable grapes to additives to enhance flavours and tannins. You can fix bad juice so that it becomes difficult to detect faults. Producers invest heavily in oenology but very little in viticulture. They believe soil is an unimportant component in making wine.

In olden times without healthy soil, wine could not be produced due to mildew or vine disease. But today technology and chemicals make it possible. In the winery, you can increase or decrease alcohol content; you can increase or soften tannins by using specific enzymes. Even yeasts are lab-made to enhance flavours. There is a yeast for Syrah, one to add banana flavours to Beaujolais, and so on.

In simple terms, which types of soils best suit specific grapes?

Calcareous soils suit Chardonnay, Pinot Noir, Cabernet Franc and Malbec because these varieties were grown for centuries on these specific soil types. With time, they adapted naturally to their surroundings. Acidic soils work for Syrah, Riesling and Cabernet Sauvignon. Volcanic soils suit Furmint, Assyrtiko and Aglianico for the same reasons.

It is called epigenetic modification or adaptation by grapes to their environment. Some grapes have physical traits that make them naturally more suited to certain soils. This, along with adaptation to their environment are



An early photo of Lydia at work in the vineyard

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the results of evolution, not just genetic mutation. Only vitis vinifera produce quality grapes for wine, hybrids cannot replicate that quality. Hybrid grapes can offer protection against specific diseases, but not against all. For instance, Gamaret may be protected against mildew, but not against black rot.

In conventional agriculture with the use of herbicides, chemicals, etc, how long does it take for the soil to regenerate?

If you use compost and plant cover, you can restore soil life in four to five years. Too much herbicide affects soil porosity and prevents oxygen from reaching the roots. The wine as a result loses the taste of terroir. In the past in Europe, vine roots grew 3.5 metres deep to absorb



Claude, Lydia and their son, Emmanuel in the cellar assessing wines from the barrel



Young vines in a vineyard, protected against vine disease and pests

nutrients that would positively affect the taste of the wine. Today, due to the use of herbicides and pesticides, roots grow no deeper than 0.5 metres! This results in early mortality; the vine dies in under 25 years.

Is there any science behind the notion of minerality as expressed, for example, in the white wines of Chablis?

Every soil and rock has its own mineral concentration. Wherever roots grow deep, they attack the rock underneath the soil and these minerals are absorbed during fermentation, leading to a concentration of minerals in the wine.

We prefer to describe wine in terms of texture instead of aromas. Textures indicate the soil on which the grapes were grown. For example, magnesium, found in the soils of Italy, has a spe-

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cific bitter taste. And if you think of it, Italians love the presence of bitterness in their food and beverages – it is a cultural preference. When the soil is full of life, it is easy to taste the texture. Wines made with chemical components do not show such texture.

What about the role of water in the vineyards?

Vines do not need excess water – they survive on less – and 300mm would be ideal in most climates. Assyrtiko and Palomino are two grapes well-adapted to low water conditions. Merlot, on the other hand, can grow where rainfall touches 1200mm. So Merlot in southern Spain will produce alcoholic wines.

How does Malbec succeed in Argentina, which is so different in every way from Bordeaux, its original home?



Wine from grapes grown on an estate with shallow soils rich in kimmeridgian limestones

The problem is if you plant Malbec in Argentina, you get wines with high alcohol (over 14%) and these can be heavy and lack elegance. Before the phylloxera outbreak there was no Malbec in Argentina. Then Malbec (called Côt in its home of Cahors in France), was planted in Argentina on its own roots, and adapted over time to Argentinian conditions. Take Chenin Blanc as an example. It has adapted well in South Africa where the soils have similar acidity to Anjou, its natural home.

Could you compare organic and biodynamic viticulture and their effect on wine?

Organic and biodynamic wines offer an inherent energy to their taste, although it's difficult to measure that in exact scientific terms. In a way, you could compare organic and biodynamic viticulture to homeopathy for the soil.



Biodiversity in the vineyard. Rose bushes and other plants are a common sight

In an interesting blind tasting experiment in Burgundy, wines produced using the same grapes in the same region by the same producer were organically grown in one case and biodynamically in another. Expert tasters thought they were tasting different wines and were surprised to learn that both samples were from the same wine. The organic wine showed more primary flavours, while the biodynamic was more complex, with tertiary flavours. Simply put, biodynamics attract more nutrients to the vine, resulting in greater complexity.

Among the many famous vineyards you've advised, is there any, where soil management made a difference?

Yes, in Burgundy, for instance, soil management has made a difference. We have worked with the

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most famous domaine in Burgundy, converting it to biodynamics. The experts and critics have all said the domaine's wines today show greater complexity and ageability. In fact, it is widely acknowledged that the wines of Burgundy have greatly improved in quality in the last 20 years by converting to organics or biodynamics.

Your early research found poor microbiological activity even in top Burgundy vineyards and you compared them to the Sahara at the time! Why?

We experimented with the biological activity of different soils at the National Research Institute for Agriculture. What was shocking was that we found better biological activity in the soils of the Sahara desert than in Burgundy's vineyards which were ridden at the time with glyphosate and other pesticides. This came as a huge shock to the Burgundy wine community.

When you decided to start your own production at Laroque d'Antan why did you choose Cahors?

For several reasons, firstly, Cahors was considered one of the greatest wine regions in Europe in the Middle Ages. Also, the terroir is identical to Sancerre and Chablis (Kimmeridgian). Finally, the soils had been abandoned for 150 years, so it was like virgin soil, devoid of chemical fertilizers and pesticides. We co-planted and co-fermented six varieties of red and white grapes in the tradition followed during the Middle Ages. So, ours is a form of wine archaeology!

India is a country of tropical viticulture, with fertile soils and heavy monsoons. Having tasted Indian wines, what advice do you have for our wine producers?

We would advise Indian producers to grow vines closer to the Himalayas or in dry Rajasthan where the climate and terroir are more suited to viticulture than in the current regions where humidity is too high and the soils too fertile. India is a very large country, there is bound to be good terroir for wine. ❖



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Sparingly made, hand-crafted, and overseen by master winemakers, the new Signet range features 5 wines- each fermented with a unique technique that lends it a nose and a palate of its own.

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PHENOLICS Phenolics in wine that mostly come from the pulp, skin, seeds and stems of grapes are molecules that help preserve wine by absorbing oxygen. They are also responsible for structure, colour and ageing potential in red wines. Two key phenolics found in wine are tannin and anthocyanin.

PHYLLOXERA Tiny aphids (root lice) that attack vitis vinifera roots. The disease was widespread in both Europe and California during the late 19th century, and returned to California in the 1980s. There is no known cure at this time. Vitis vines are instead grafted on to native American rootstocks.

QMP – QUALITÄTSSWEIN MIT PRÄDIKAT German for a 'quality wine with distinction', a classification based on the level of ripeness of the grapes. The grapes must be picked as specified by law and the wines cannot have any added sugar. The six levels of QmP wines, starting with the driest and harvested earliest, are Kabinett, Spätlese, Auslese, Beerenauslese, Eiswein and Trockenbeerenauslese.

QUALITÄTSSWEIN German for "quality wine." A broad category encompassing the majority of German wine. It includes QmP and QbA wines. In Austria, it is the category between Landwein and Prädikatswein.

RACKING The practice of moving wine by hose from one container to another, leaving sediment behind, for the purpose of aeration or clarification.

REMUAGE In sparkling wine production, a tedious process where each individual bottle is rotated and tilted very slightly over time so that the yeast is loosened and settles into the neck of the bottle.

RIBOLLA GIALLA (ree-bohl-lah jah-lah) Ancient white variety from northern Italy, bordering



Slovenia. Rarely seen elsewhere, wines are typically light in body and offer fruity, floral aromas, as well as bright acidity.

RIPASSO A traditional style in Italy's Veneto region, where fresh, young Valpolicella wine is placed in contact with the used lees and unpressed skins of Amarone wines after their fermentation, activating a second fermentation, which imparts a sweet, raisiny character into the young wine while increasing alcohol content.

RISERVA Specific to Italian wine regions, this term acknowledges wines with both higher alcohol levels and longer ageing than the minimums stipulated by the appellation laws.

SAIGNÉE Meaning "bleeding" in French, involves making rosé as a by-product of red wine fermentation, where a portion of the pink juice from the grape must is removed at an early stage, and fermented separately to produce rosé.

given grape variety grows. Derived from the French word for Earth, "terre".

TROCKEN The German word for "dry" and indicates dry wine.

TROCKEN BEERENAUSSLESE

Wines made from grapes picked after they are fully infected with noble rot. The water has dried leaving behind more concentration. The wine produced is golden and honeyed, high in alcohol and lusciously sweet. The best quality is balanced by acidity and thus avoids being cloyingly sweet.

UNION DES GRANDS CRUS DE BORDEAUX

An organisation comprising 134 estates located in exalted Bordeaux appellations of the Gironde like Barsac, Graves, Médoc, Pessac-Léognan, Pomerol, Sauternes and Saint Emilion.

VARIETAL A varietal is a wine named for the dominant grape variety although other grape varieties may also be present in the wine.

VINTAGE The year the grapes were grown and harvested

VITIS VINIFERA Classic European winemaking species of grape. Examples include cabernet sauvignon and chardonnay. There are many other species of grapes such as Vitis Labrusca, a North American grape species.

VOLATILE ACIDITY Describes an excessive and undesirable amount of acidity, which gives a wine a slightly sour, vinegary edge. At very low levels (0.1%), it is largely undetectable. At higher levels it is considered a major defect.

YEAST Micro-organisms that produce the enzymes which convert sugar to alcohol. Yeast is necessary for the fermentation of grape juice into wine.

SALMANAZAR An oversized bottle holding nine litres, the equivalent of 12 regular bottles.

STRUCTURE The interaction of elements such as acid, tannin, glycerin, alcohol and body as it relates to a wine's texture and mouthfeel. Usually preceded by a modifier, as in "firm structure" or "lacking in structure".

SUR LIE (French for "on the lees") Wines aged sur lie are kept in contact with the dead yeast cells and are not racked or otherwise filtered. This is mainly done for whites, to enrich them (it is a normal part of fermenting red wine, and so is not noted).

TANNINS Compounds that contribute to a wine's structure, mouthfeel, and astringency. Tannins in wine are derived from grape skins, seeds, and stems. The more contact the juice has with these elements, the more tannic the wine.

TERROIR The overall environment within which a

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