

CHÂTEAU CHEVAL BLANC

CHÂTEAU CHEVAL BLANC MANIFESTO


Promoting (anti)conventional viticulture

Because we believe that it is possible to improve the world of wine, we are building a more sustainable and accountable agricultural model. We have chosen to follow the path of agroecology. Agroecology, which respects life taking inspiration from nature whilst preserving our identity. This approach was initiated a few years ago and is now on a fast track.

CHÂTEAU CHEVAL BLANC

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Agriculture is at a turning point in its history. Viticulture is at the mercy of climate change and the drastic reduction in biodiversity. The limiting effects of intensive, single crop farming are particularly problematic in the winegrowing sector. Soils have become fragile through ploughing and the use of weed killers and have lost their richness permanently due to the use of fertilisers and pesticides.

Because we believe that it is possible to improve the world of wine, it is both our responsibility and our duty to play a part in building a more sustainable and accountable agricultural model. We have chosen to follow the path of agroecology. Agroecology which respects life taking inspiration from nature whilst preserving our identity. This approach was initiated a few years ago and is now on a fast track. With our feet firmly planted in the earth and in our era, we are reconnecting with our past and with our roots both of which embedded in the practice of polyculture.

Diversification and biodiversity are back at the heart of our domain and our vineyards are now part of a complex system which includes animal breeding, market gardening, fruit and flower farming and beekeeping. This sustainable agriculture is rooted in soils which live and thrive naturally without man-made intervention.

This agro-ecological approach, adapted to our estate, has been refined using a wide array of tools and diagnosis which will enable an objective evaluation of the results. Nothing will be left to chance. Armed with our convictions, passion and a plan of action we are not here to preach or dictate.

At Cheval Blanc, we don't take our achievements for granted. Our duty, as guardians of this precious and unique terroir, is to preserve it and to pass it on to future generations. We know that the choices we make today will impact on our land and our wines in the future. This is why we are embracing this new direction resolutely, based, as always, on our values of excellence and our desire to keep improving, stopping at nothing to showcase, vintage after vintage, this exceptional terroir.

I. OUR OBJECTIVES

- a. To reconcile nature and farming
- b. To protect, cultivate and transmit
- c. To maintain biodiversity
- d. To ensure the fertility of the soil
- e. To eliminate our carbon footprint

II. OUR PRACTICES

- a. Plant cover
- b. Agroforestry
- c. Polyculture and breeding
- d. Phytosanitary policy
- e. Monitoring tools

III. CONTRIBUTORS

- a. Alain Canet
agronomist
specialist in agroforestry
- b. Konrad Schreiber
agronomist farmer
specialist in living soils
- c. Marc-André Selosse
biologist
professor at the National Natural History Museum
specialist in microbial life

PRESERVING
THE
IDENTITY
OF
THE DOMAIN

Foreword

Our approach is based on pragmatism: we are simply the guardians of an unusual terroir which has gained international recognition and notoriety thanks to its timeless, unique qualities. It is our responsibility to preserve the prolific, natural heritage which produces this great wine.

For six centuries, winegrowers have been working this land which, itself, has been rooted in the culture of wine for 2,000 years. The reins of Cheval Blanc have only been handed over once in over 150 years. This has meant that the chateau has benefitted from consistent technical management and has also preserved its vineyards in their entirety. Cheval Blanc is one of the rare properties to be owned by a single proprietor and to have kept more or less the same plot of land for a century and a half. The varietals planted on the property are also unusual for the region; 52 % Cabernet Franc, 43 % Merlot and 5 % Cabernet Sauvignon.

It is our job to preserve this unique terroir. The great wine produced at this domain is the inheritance of everyone in the world who knows the magic of this wine.

I

OUR
OBJECTIVES

*Always respectful of its origins,
since its creation Cheval Blanc
has continued to evolve and improve
quality to achieve excellence.
As guardians of its past
and future our mission is steadfast;
to produce great wines. However,
the climate crisis poses another
challenge: to find concrete
and long-term solutions to
the environmental issues
we are facing now and in the future.*

a. Reconciling nature and cultivation

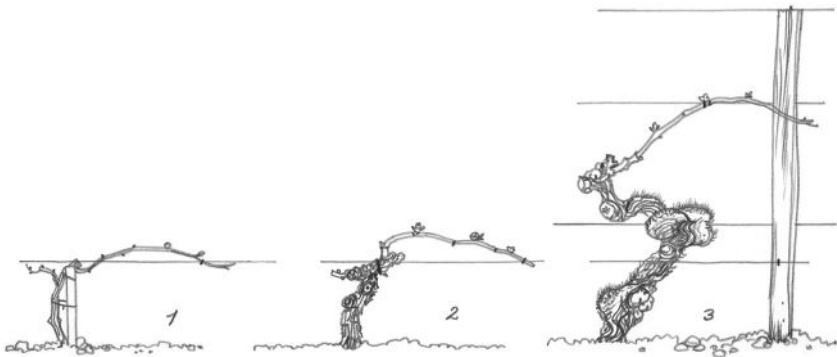
To partner nature with cultivation requires utmost respect for a fragile balance. This balance has been vastly out of kilt for many decades thanks to the many damages inflicted repeatedly on the soil by mankind. Several methods from the past, such as ploughing and mineral fertilisers, have proved to be less successful than originally thought. This means that we need to reinvent the terms of a new pact between life forces; between earth, the vine and the winegrower.

At Cheval Blanc, we have decided to commit ourselves fully to this new era relying on agroecology; a method of agronomy which promotes the natural fertility of the soil by following nature's cycles. No soils are left stripped and we are even planting trees amongst the vines following this principle. Trees are carefully selected and planted as saplings to give them chance to acclimatise to our soils. These trees will help to take care of our land thanks to their root systems and the mycorrhizal funghi which colonize them. These are precious natural allies which stimulate growth and increase the plant's capacity to absorb water and nutrients in the soil.

b. Protecting, cultivating and transmission

At Cheval Blanc, each generation is conscious of working for future generations bolstered by their own knowledge. As a result, our vineyards have been looked after with consistency and our respect for the soil means that we have never used herbicides. Over the generations the ever-increasing knowledge, competence and talent of our winegrowers has been passed on. The complex mosaic of our different plots makes up a precious legacy which we protect on a daily basis.

We also have a long history of caring for our plantings. Since 1992 we have had a programme in place aimed at maintaining diversity. We select our plants and cuttings from top quality vines planted between 50 to 100 years ago when diversity in the vineyards was much richer than it is today.



Evolution of a Cabernet Franc vine plant.

1. 5 years 2. 30 years 3. 90 years

c. Promoting biodiversity

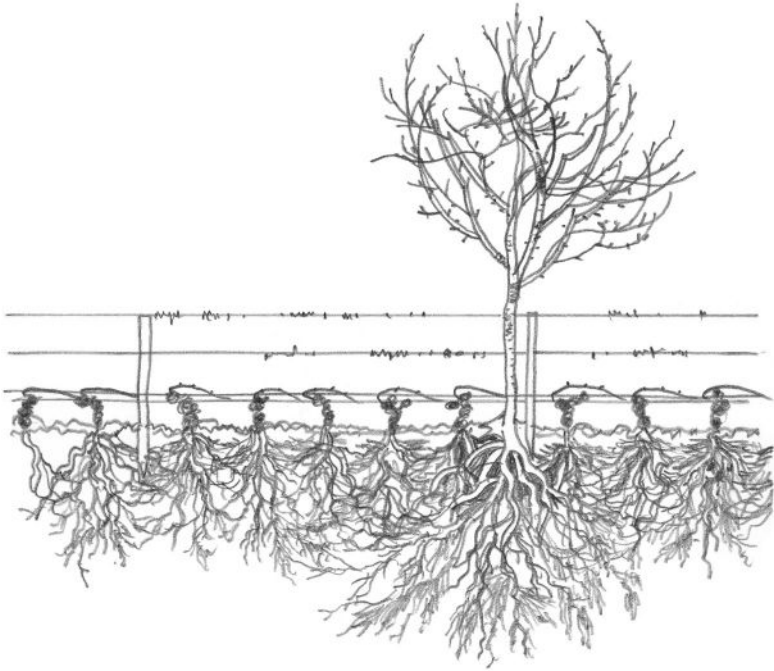
At a time when biodiversity is dying out, life must be reinjected into our vineyards and fields. Vineyards can no longer be satisfied with offering to the world the image of endless rows deserted by flora and fauna, witness of an era when one advocated a systematic and standardised agriculture.

Cheval Blanc has undertaken a vast tree and hedge-planting programme throughout the domain to ensure the proliferation of life in our vineyards. Branches, foliage and trunks all offer refuge and corridors for insects and birds. We leave a selection of fruit unpicked to provide a source of food thus ensuring they are provided with sustenance and shelter.

Three ponds have been landscaped on the domain to collect rainwater both for irrigation and also to encourage the development of a new eco-system on our estate. Areas dedicated to our orchards, vegetable plots and flower gardens are also being increased. We have already built two greenhouses for market gardening and plan to expand our crops as we move forward.

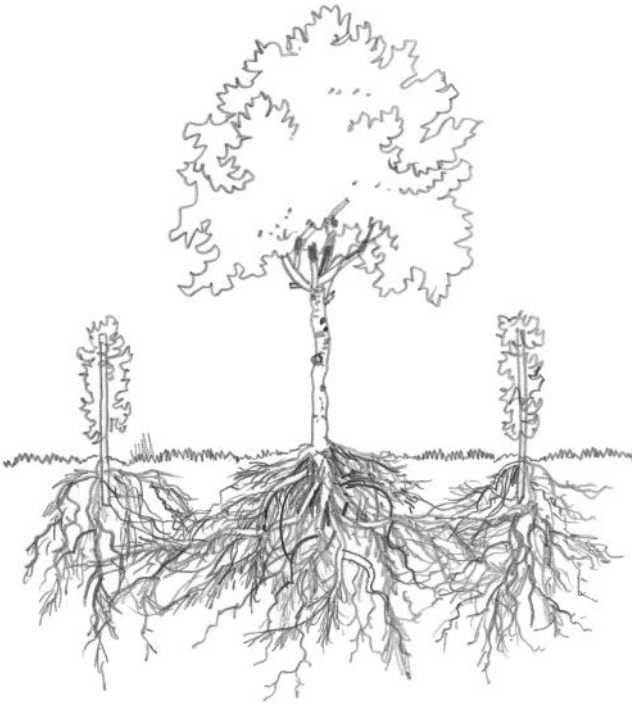
d. Ensuring the fertility of our soil

Fertile soil can provide a home to an unbelievable range of organisms. A single gram of soil is populated by thousands of types of bacteria and anything between one hundred and a thousand types of mycorrhizal fungi; this stimulates growth in most plants and grows as a web of tiny filaments in the plant roots and in the surrounding vegetation.

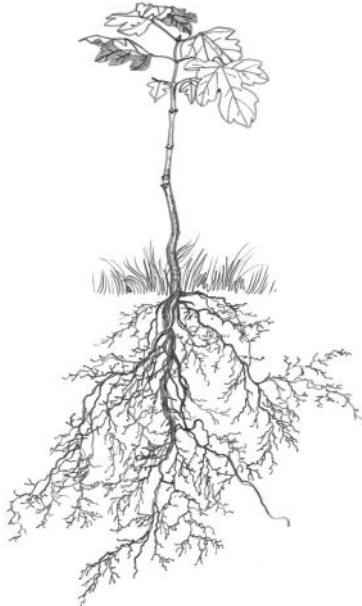


*10-year-old plum tree in a joualle.
Parcelle 14A: Left hand side of the avenue.*

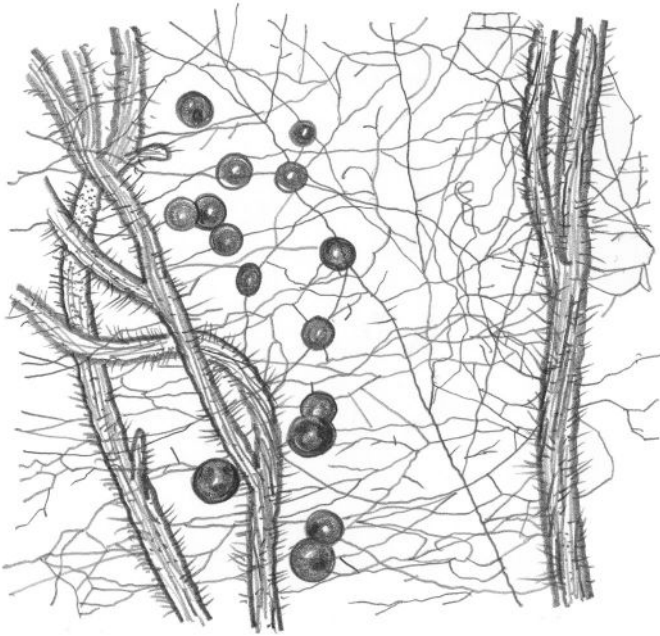
Soil can be described as a plant's intestine. A crop's longevity depends upon the fertility of the soil it is planted in. Durable growth in the vineyard can only be sustained by a living soil. We can use forests as a benchmark as they produce the largest amount of biomass without human intervention meaning that forest soils are self-sustainable. The vegetation found on the forest floor provides all the necessary nutrients for regeneration.



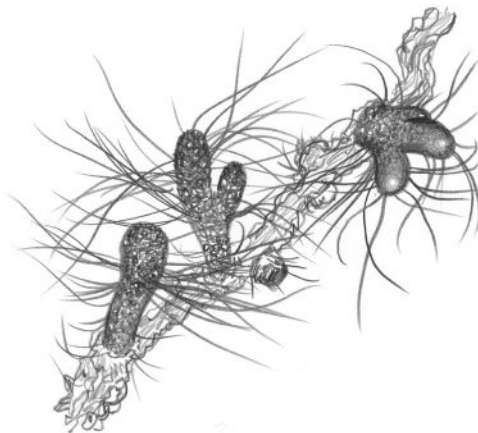
Underground diversity of the rhizosphere.



Root system of a young maple tree.



Endomycorrhizal Glomeromycota found in roots.



Ectomycorrhiza found in roots.

We prefer to have plots which are protected and nourished by vegetation than soils which are exposed and devoid of plant cover. Instead of tilled soil exposed to erosion in between our rows of vines, we encourage the growth of grasses to avoid drought and oxidation. Rather than using mineral fertilizers which encourage a dangerous dependency, we rely on natural fertilisers and the self-sufficiency of fertile soils. Leaves, twigs, branches, wood and other matter falls to the ground and are broken down by micro-organisms before being absorbed by the soil. This virtuous cycle of life reminds us of the value of the simple basic principles: plants absorb the rays of sun, photosynthesise, produce vegetal biomass and replenish the soil with energy.



Principle of carbon storage in the soil.

- 1. Plants photosynthesise transforming atmospheric carbon into organic carbon.*
- 2. Vegetal debris falls to the ground and forms part of the soil's organic matter.*
- 3. Earthworms burrow into the organic matter participating in the decomposition process.*
- 4. and 5. Arthropods, fungi and bacteria take part in the process by providing the mineral elements which are vital to the plants' growth.*

e. Increasing levels of carbon

A key component in the fight against the greenhouse effect and global warming lies in the increase and maintenance of the levels of carbon in our soil whilst, at the same time, improving the fertility of our land and crop production.

The ambitious programme '4 per 1,000' highlights the crucial role that agricultural land has to play in the fight against climate change. This is a French initiative launched in December 2015 during the COP 21. Scientists have found that an annual growth rate of 0.4% in the soil carbon stocks in the first layer of soil would significantly reduce the CO₂ concentration in the atmosphere related to human activities.

The principals of agro-forestry and the introduction of extensive vegetal cover practiced at Château Cheval Blanc contribute to this virtuous cycle. By allowing our agricultural land to produce its own carbon matter which is then transformed into organic matter we are promoting the capture of atmospheric carbon. This carbon also contributes to the fertility of our vineyards.

II

OUR PRACTICES

The process of reflection which we began over ten years ago continues and is accelerating. The initiatives we have implemented on our estate converge with a synergy between all the 'actors' involved in our agricultural processes: men, vineyards, plants, trees, soils, insects and also the farm animals which provide fresh impetus at Cheval Blanc.

a. Vegetal cover

To preserve its soils, Cheval Blanc has gradually stopped all ploughing; a practice which is now thought to be intrusive and harmful to underground life. Active microbe life in the soil can only be preserved and propagated if it is left unploughed. The more the rows between the vines are worked over the more the soil structure is destroyed, disrupting biological activity and reducing its fertility. Intensive farming also impacts negatively on the fragile earthworm population so important to the soil's ecosystem.

We believe in growing our vines in living soils and this requires permanent vegetal cover. After the harvest, we sow seeds between the rows of vines; clover, mustard, radish, carnations, flax, wild rye. These plants grow over the winter and spring to a height of 50cm to 1 metre. In May, they are flattened mechanically to form a cover which we call living straw.

This has various roles: to prevent weeds from growing and the soil from drying out, to reduce the heat of the summer sun within each plot and to help the absorption of rainwater into the soil. Following this, in the autumn, the living straw dries out and decomposes into organic material with nutrients which are then absorbed by the soil. This straw cover also prevents the erosion which bare soils are subject to. Live soils are stable and don't suffer from erosion. Before replanting our vineyards, we also use green fertilisers; fababeans and clover enrich the soil with nitrogen.



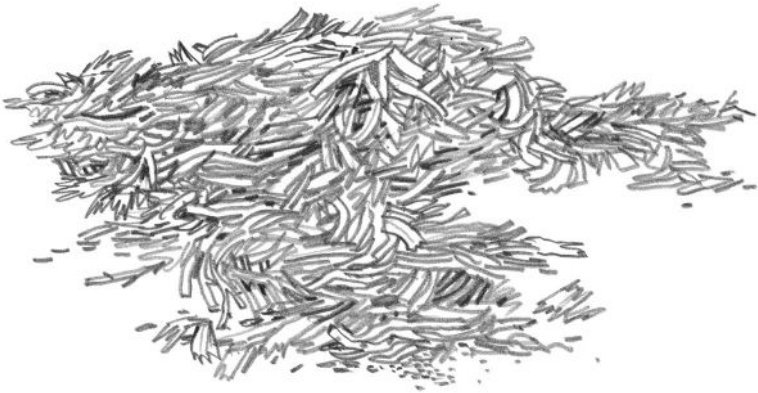
Growth of vegetal cover of 60 cm wide between 2 rows of vines from September to May.



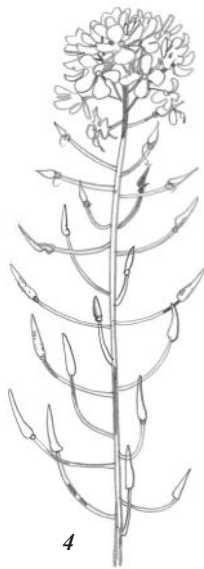
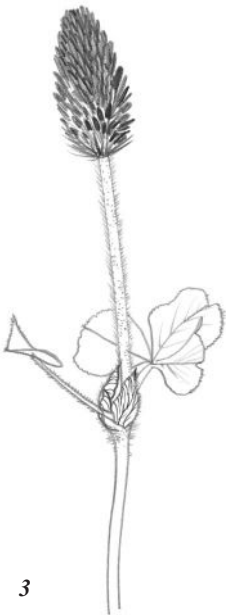
Vegetal cover flattened and rolled to form living straw between 2 rows of vines from June to September.



Network of earthworm tunnels which help organic matter to bed deep into the soil.



Rameal Chipped Wood spread around tree trunks and on the ground in the vineyards to stimulate the natural fertility of the soil.

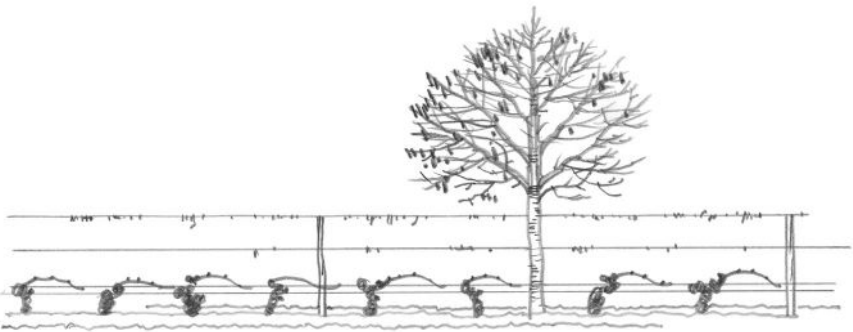


1. White radish – cruciferous plants 2. Wild rye - grasses
3. Clover - carnations - legumes 4. White mustard – cruciferous plants
5. Oilseed flax

b. Agroforestry

Agroforestry imitates nature and forest life as they has thrived for thousands of years by integrating trees into cropped land. These principals, applied by the wine growers, improve the soil and fertility in our vineyards. Both the carbon matter produced by the trees and their root systems stimulate soil life and fertility naturally without intervention from the outside.

Our ancestors understood the benefits of the symbiosis between vines and fruit trees. ‘Joala’ is an ancient farming system which was practiced in several regions of Europe as well as in the South West of France.

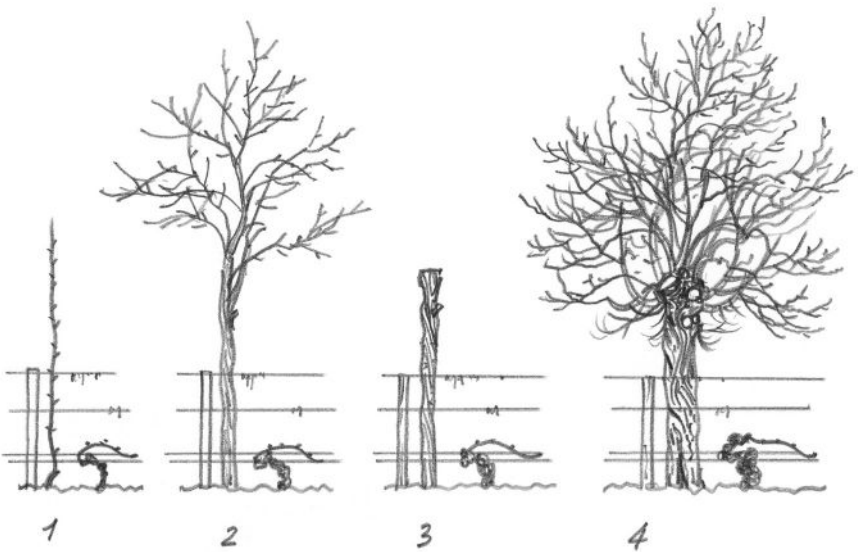


A forest tree in the middle of a joualle.



Overview of the estate - vines and trees.

At Cheval Blanc, trees are at the very centre of our farming practices. They have a clearly defined role. They create a network below ground via mycorrhizae which connect cover plants, vines and other trees and enable the distribution and sharing of the trees' nutritive elements. During dry weather, the trees act as conduits for water ensuring that the vines are hydrated. The tree canopies offer protection and nesting for birds and insects, both of which play an important role as natural predators of vineyard pests. During pruning and trimming, the off-cuts and branches feed the soil with raw material ensuring the future fertility of the soil. Last and not least, the shade proffered by trees in the vineyards shields them from the midday sun. This is particularly important given the increasing frequency of heatwaves.



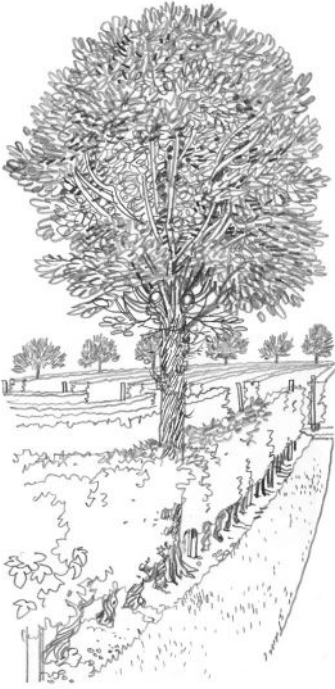
*Formation and evolution of a pruned forest tree amongst a row of vines.
1. Sapling 2. Young tree 3. Pollard pruning 4. An old pollarded tree*

A thousand fruit trees have been planted at Cheval Blanc both along the perimeters and inside the vineyards – almond, quince, peach, plum, nectarine and pear. This is an ambitious project which led to plant several thousand more fruit trees and forest trees over 16 hectares.

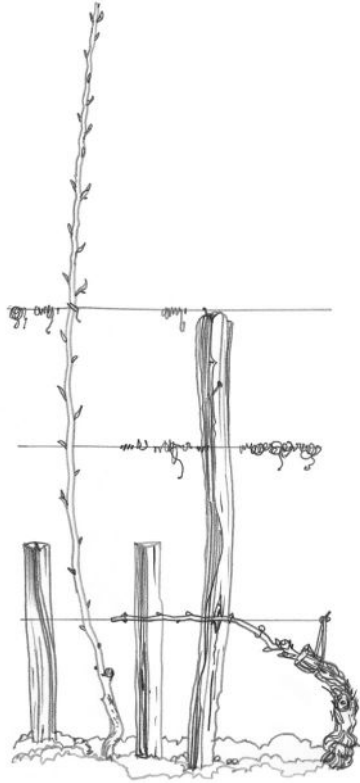
Trees also dominate the main pathways leading to the château. They are lined with nearly 300 linden, rowan, maple, beech and white mulberry trees. Our estate is enclosed by hedgerows composed of hazel, medlar, dogwood and hawthorn as well as various fruit trees. Eventually, this green band will border our entire estate with around 4km of hedges in total.



Pollarded maple tree in leaf amongst a row of vines.



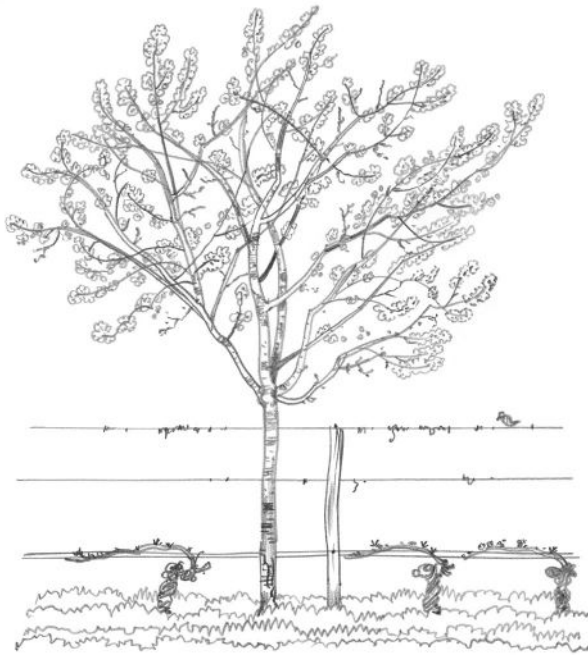
Pollarded linden tree in leaf amongst a row of vines.



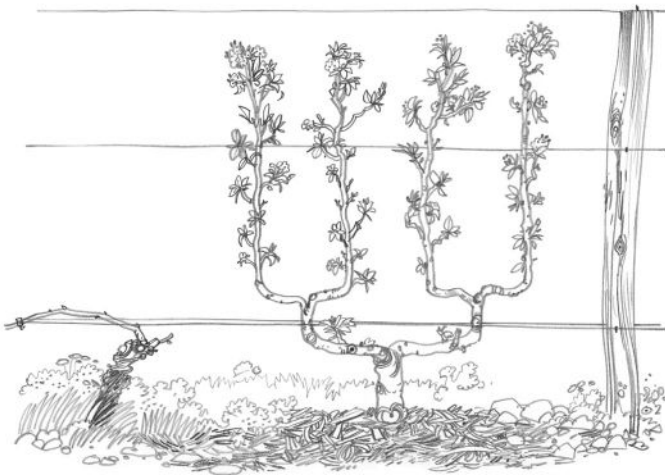
Conference pear sapling.



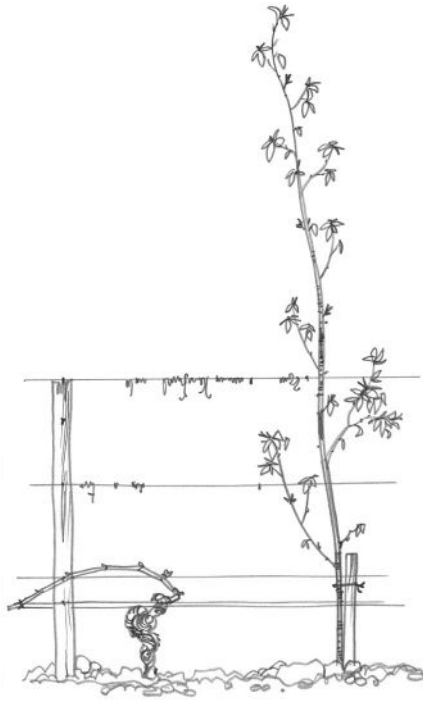
Overview of a copse of trees offering shade and refuge to the fauna in the middle of the vineyard.



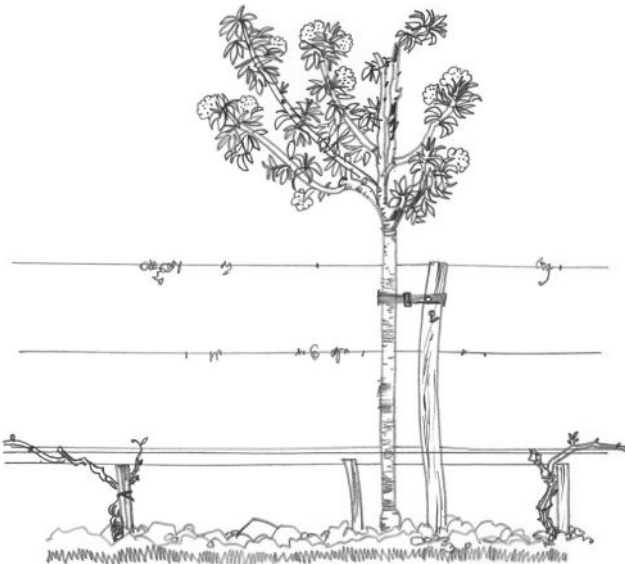
Elstar apple tree in blossom at the beginning of April. Plot D « les blancs de l'allée »



Palmette pruned apple tree. Plot 16 « les graves du cuvier »



Plum sapling planted in a row of vines. Plot 10 « la médoquine »



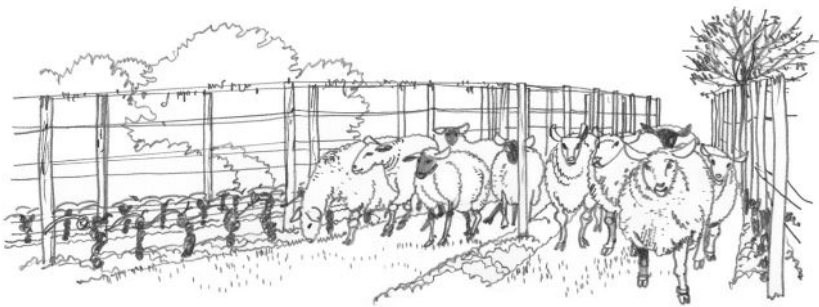
Peach tree in blossom planted in a joualle. Plot 14 A « avenue côté gauche »

c. Polyculture and animal husbandry

Before the move to strict monoculture became the norm, winegrowing estates were also farms. Polyculture and animal husbandry went hand in hand. This interaction and cooperation between the two was as beneficial to the life of the farms as it was to the health of the vines.

Animals have returned to our vineyards as an integral part of our viticulture. Between October and March, ewes roam in our vineyards. The benefits are two-fold; they stimulate the plants as they graze and fertilise the land whilst passing through. This virtuous system of raising livestock is being practised throughout our estate. We are introducing other animals which now share our life at the Château. A small group of pigs is being raised in a large outdoor enclosure.

We are raising chickens in mobile coops and they help to rid the land of a multitude of insects. We also have fifteen beehives in our parks, orchards, gardens and vegetable patches. As well as producing honey, the bees also pollinate our plants. They are crucial to our strategy for maintaining plant-health.



A herd of ewes grazing in the vineyards during winter.

We favour short chains of production and local products. We consume our own produce accompanied by our families and clients together with our staff and the harvesters. Our aim is to achieve self-sufficiency by producing everything we need on the estate; vegetables, fruit and aromatic plants and herbs for our meals. Our local staff also produce plum and pear Eau-de-Vie, honey, jam and apple juice on the estate. And our tables are decorated with flowers from our own gardens.



Dadant beehives situated around the property (orchards, flower gardens, fallow fields).

d. Plant-health policy

We have a prophylactic approach to protecting our vineyards; preserve and strengthen rather than treat and repair. Our skills lie in precision viticulture, well-maintained vineyards and careful planning. Each plant is carefully pruned to provide balance; moderate canopy cover with a manageable number of grape bunches, restricted nitrogen and water and just the right exposure to the sun. The maturation cycle is carefully managed to improve the health of the plant and to stimulate its capacity for self-preservation. The increasing biodiversity in our vineyards and the resulting live soils have reduced the risk of diseases such as those caused by parasites.

As important as this approach is, sometimes it is insufficient. When faced with particular regional scourges such as mildew, for example, we have to treat the vineyards. In such cases, our responsibility is to select the most suitable product for man and the environment with the minimum impact on both. For over 30 years we have been restricting the use of the copper we use (in the form of 'bouillie bordelaise') which is too toxic and long-lasting for the life of the soil.

We have never used herbicide on the domain. We do not use insecticide or anti-rot treatments. Château Cheval Blanc is relying on sustainable, reasoned and reasonable viticulture to ensure its future.



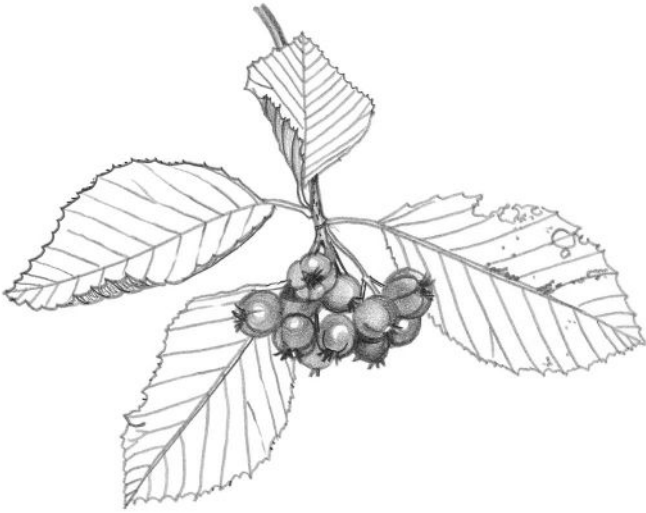
Apple blossoms. Château Cheval Blanc

e. Tracking Tools

All agro-ecological methods employed rely on scientific data. Their impact is measured and verified with extreme precision based on agronomical principles. The production of biomass; plant growth; the richness in organic matter and the increase of its components; the temperature of the soil and the composition of the mulch are all measured and compared using performance indicators recognised and validated by the scientific community. Researchers at the National Natural History museum and academics at the Faculty of Bordeaux are involved in the programme and will be undertaking a raft of tests at the domain to complement the work of our own teams. In particular, they will be monitoring the impact on our vines of the trees and vegetal cover as well as the exchanges of nutrients induced by the presence of different plants and the evolution of nitrogen levels in our soils.

This scientific input will help us to move our production methods ever closer to our environmental objectives whilst never losing sight of the excellence of our wine.

At Cheval Blanc, we enjoy a real luxury: we can invest in the long-term future. As winegrowers we can take the time to observe, understand, act, adjust and, if necessary, to start again from scratch. The fruits of our policies will be enjoyed by future generations who, in turn, will be in a position to re-evaluate our current choices. Today, however, our responsibility is to anticipate as accurately as we can the world of the future and to strive to produce the highest quality of fruit for tomorrow's harvests at Cheval Blanc.



Sorbus aria, whitebeam.

III

OUR CONTRIBUTORS

Alain Canet

agronomist

specialist in agroforestry

Konrad Schreiber

breeder, agronomist

specialist in living soils

Marc-André Selosse

biologist

professor at the national Museum of Natural History

specialist in microbial life

Alain Canet is director of Arbres et Paysages 32 in the Gers and an active member of the National Centre of Agroecology.

Trees and nourishment of the soil

When I was 14, I lived on my family farm which had gone down the organic path. That was at the beginning of the '70's. There were already signs of a storm brewing ahead. The land was fading. I coped with it badly. Living agriculture was never a revelation to me, it was a way of life. I wanted to look after the earth. That is why I took up agroforestry. I began planting trees in the fields on my own steam. Already, at that time, I would explain that it was time to include trees in the cycle of farming production and in order to keep the soil fertile. A tree in the middle of a field or on its perimeters has a positive impact on water, the climate and the quality of the soil. It is crucial in order to establish a virtuous farming ecosystem. Today, the climate and agricultural crises are in the forefront of everyone's minds. For some soils it is already too late. But for most, we have time to act. The question of soil fertility is now recognised by society. We're backed into a corner. Yields are decreasing and production costs are increasing. The viability of a holding lies in the life of its soil. The choice is simple. It comes down to two specific priorities. Only two! Cover the soils and plant trees! There is too much CO₂ in the atmosphere. We need to trap it and store it in the

soil to enrich it. We can protect the environment and be productive at the same time. The trees, conductors of the agroforest's orchestra, have a lot to communicate. They tell us about the positive impact of trees on farming and remind us that agriculture needs trees to survive. As long as they are planted in the right place and in the right numbers and properly managed, pollarded and pruned, trees serve farming needs and improve production. In this context, I like to talk about 'domestic forests'; trees become a precious tool for viticulture.

The canopy creates its own microclimate which manages light and protect the vines from the sun, wind and cold weather. It also promotes biodiversity by attracting birds and insects as well as bestowing us with its flowers and fruit. Broken branches fallen to the ground promote soil humus which enriches the earth's fertility. Thanks to this virtuous cycle we move away from fertilisation to fertility. Underground, trees create their own soil systems maintaining and redistributing life and energy to other plants. They hardly need anything to do this apart from carbonic gas. This is how they transform a major problem for mankind into a clever solution; by trapping carbon, trees become conductors of the climate. Faced with the over- production of carbonic gas the solution is simple. Underground, trees promote the growth of mycorrhizae. This symbiosis between the roots and microscopic fungi stimulates the plants around them. Mycorrhizae increase the capacity of the soil to carry water, carbon and other nutrients. We tend to say that Mycorrhizae compensate for the deficiencies and enhance the qualities in the soil. These networks help the trees which, in turn, nourish the vines and maintain life in the plots. In agroecological terms, the transition to trees is the transition to life. The environmental issues surrounding viticulture are not the problem, they are the solution.

Konrad Schreiber

With his experience as president of CUMA (Cooperative for the Use of Agricultural Equipment) between 1987 et 2006, Konrad Schreiber is involved in the development of farming ecosystems which work to improve techniques to conserve soils in France. He participates in many agricultural projects aimed at developing live, fertile soils. The aim is to produce and to protect.

It is time for the genius of plant life and man to coincide

The 21st Century is faced with an energy and social crisis without precedent. Think about this: we need to nourish at least 9 billion people whilst doubling our production of energy and without polluting the planet. The concentration of Global Greenhouse Gases is a major problem but, in addition, our water is polluted and biodiversity is dying out. This is a colossal challenge for a society with no understanding of the concept that ‘the world will end if we cannot put food in people’s mouths’. This is normal. However, there are many ways we can produce and protect. In agriculture, the techniques being used to preserve the soil are yielding fantastic results and in market gardening techniques for growing on living soils are emerging. Away with the hoe, the rototiller and the spade! Now is the time for the genius of plant life to meet man! Indeed, plant life is genius. It is the only ‘tool’ at man’s disposition that can trap excess carbon dioxide in the atmosphere and transform it into renewable biomass through photosynthesis. Plants keep the planet cool. They absorb the sun, create shade, go through the evapotranspiration process and control the temperature. Did you know that trees are the best air conditioners on the planet? Plants establish a cycle with three functions that work in harmony to demonstrate to us how to produce prolifically without polluting. The first function of plants is to absorb CO₂ in the atmosphere. This represents 60 billion tonnes of carbon every year. The second function of plants is to use the biomass. Plant ‘eaters’ necessarily return the absorbed CO₂ back into the atmosphere. It is not widely known, but there is not enough carbon in the air to enable photosynthesis forever. The atmosphere contains

750 billion tons of carbon and plants use 4 % (32 billion tons) annually. Within 24 years, if the carbon they absorb isn't returned to the atmosphere in the form of CO₂, there will be no more greenhouse gases. Life on earth would no longer be possible. It will be impossible to invent a mechanism as complex as photosynthesis in 24 years. Plant eaters will continue to eat the organic biomass and, by breathing oxygen, will produce CO₂. Man has a role in this latter part of the cycle. The Great Polluters, shouldn't we be thinking about stocking biomass to create renewable energy and to restore its by-products into the soil? Surely, vine production makes complete sense as part of the long-term cycle of carbon capture? The third function of plants lies in the recycling of the soil. Here we have to speak about 'live soil' because it is the biological activity that it propagates which transforms all waste into elementary minerals as outlined in Mendeleev's table. All plants produce biodegradable waste when dead leaves and branches fall to the floor and through their roots. Plant eaters produce excrement and corpses. The biological activity of the soil decomposes all of this residue. This recycling function is vital. It stands to reason that waste should be recycled. Not to do so would pose enormous problems of resources and pollution. Nothing of the sort in nature. Because it recycles everything, it never goes short. And the soil stocks some of the waste in the form of humus. It would be enough to enrich the soil with humus by capturing the carbon in the air through plants to fight the greenhouse effect and climate change. This is how nature evolves in a durable cycle – producing, consuming and recycling – a cycle which includes 3 key functions of interest to all of our society. It is time for the genius of plant

life to coincide with that of man. Together they can work on new developmental projects; to cultivate a fertile planet and abandon exploitation. We have to stop mining carbon through our tools which destroy biodiversity and mineralise humus. By mining the carbon in humus, we exploit and destroy it creating a desert. The agriculture of the future is optimistic; it produces fertile lands by copying nature's functions. It cultivates the earth and produces biodiversity, food, clean water, renewable energy, biomaterials, pure air. It produces a fertile and productive earth where society can thrive.

Marc-André Selosse

Marc-André Selosse is professor at the National Natural History Museum in Paris and at the Universities of Gdansk (Poland) and Kunming (China). He has researched the ecology and evolution of mutually beneficial associations (symbiosis) at the Institute of Systematics, Evolution and Biodiversity (UMR 7205). He studies the mycorrhizal symbiosis between soil fungi and plant roots. He is President of the BioGee Federation, former president of the Botanic Society of France and a member of the Agricultural Academy of France. He is also editor of four international scientific reviews. He has published papers on microbiota ('Jamais seul', 2017) and on tannins ('Les goûts et les couleurs du monde' 2019).

Recovering complex agrosystems

Our countries have created a form of agriculture labelled, 'conventional'. Because we benefit from it on a daily basis we forget that it was instrumental in ridding us of famine and in stabilising agricultural profitability. This type of agriculture favours the growing of single crops using fertilisers and pesticides at the expense of the health of natural plant life. For millions of years, plants have formed diverse ecosystems, surrounded by microbes and other plants which they learnt how to use. Microbes don't just carry disease. In the soil, they encourage fertility by breaking down rocks and organic material; Mycorrhizae mushrooms help to distribute mineral resources to the roots in exchange for small quantities of sugar; soil exchanges gas with the atmosphere through bacteria, in particular those which fix atmospheric nitrogen converting it into soluble nitrogen which can then be absorbed by the soil. Above ground, microbes on the plant's surface or in its tissues contribute to hormonal balance and protect against disease. Larger but nonetheless protective, typhlodrome mites on the vines eat the fungi and arthropods

which attack the plant. Sadly, tilling, mineral fertiliser and pesticides kill these small workers. We need to enlist their help again! Neighbouring plants present more than competition: of course, we know that they are feeding from the same soil and competing for the same light! But if you only see weeds you ignore certain complementary factors. Mixed farming of cereals and legumes allows synergies and conjointly a better absorption of phosphates and nitrogen. Indeed, certain combinations of plant life reduce competition. Firstly, in time: the mixing of two different crops can cover the ground more effectively, retaining its fertility and nourishing the microbes. They produce organic matter which is then passed on to the soil.

Secondly, in space: Between the rows, shadows cover the ground and improve the soil bearing capacity. In addition to yearly crops or bush cover, trees can use up a different space and generate microclimates which will benefit the soils around them. There is nothing new here; the Amerindians with their milpa techniques practiced mixed crop gardening. Creole gardens follow methods used by the Amazonians planting perennials, trees and bushes together. Vines have been planted with trees amongst them for centuries. We need to rediscover the biodiversity which plants evolved with and test technical methods to optimise their interaction. We have a chance. Even if many species have been drastically reduced, our planet still has plenty of plant and microbe life. It is time for us to realise the value of this sleeping beauty! There is renewed interest today in biodiversity. Rather than seeing it as a constraint, it should be conceived as a tool for action and sustainability.

Whilst climate change and the disappearance of biodiversity are at the heart of everyone's concerns, Château Cheval Blanc's commitment to agroecology is founded on three pillars:

- agroforestry
- vegetation cover
- polyculture

This manifesto details the activities undertaken at this historic domain focussed on the preservation and cultivation of its identity.

CHÂTEAU CHEVAL BLANC