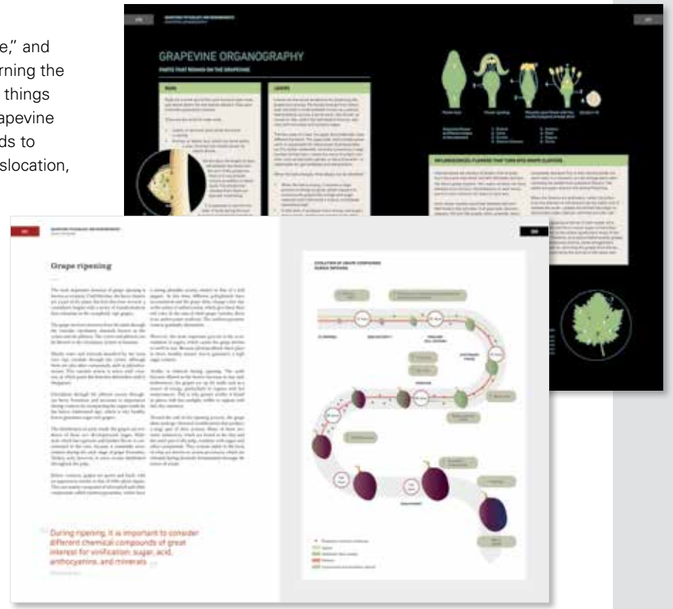
DESCRIPTIVE INDEX

CHAPTER 6

PHYSIOLOGY AND NEEDS OF THE VINE



Physiology (from the Greek *physis*, "nature," and *logos*, "knowledge") is the science concerning the study of the functions performed by living things and their organs. Being a living thing, a grapevine has an anatomy and organs. To live, it needs to undertake certain processes, such as translocation, photosynthesis, respiration, and transpiration. The correct functioning of these processes has a direct impact on the grapes' quality and, consequently, on the wine made from them. Understanding a grapevine's life cycle and behavior enables us to know about its requirements and, more important, how to satisfy them. If the appropriate growing techniques are applied, it will, as a sign of appreciation, deliver fruit of the highest quality. In addition, this chapter offers a contemporary contrasted approach to the ambiguous concept of "old vines." Will this term ultimately become standard?

CHAPTER 7

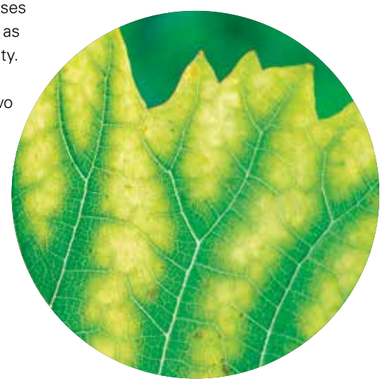
WINE-GROWING PRACTICES: FERTILIZING, IRRIGATION, AND CANOPY MANAGEMENT

A grapevine has certain minimum needs regarding nutrition and water intake, which, if not met, will have disastrous consequences for wine-growers. This is why a grapevine neglected for a few years will stop producing healthy and balanced grapes. Will it survive? Probably, but the quality and quantity of the harvest will suffer.

The control and management of a grapevine's proper development is carried out through what is known as viticultural, or wine-growing, practices; some are old, such as using organic fertilizer, while others are new, such as fertigation. At times, as in the case of pruning, it has taken centuries of empirical practice (trial and error) for their optimization and mastery.

All of these are described in this chapter, which also presents a contemporary view of irrigation, a wine-growing practice that was forbidden for years and stigmatized in the Old World. Nevertheless, it is currently used in specific cases today, with skill and precision, as part of the quest for high quality.

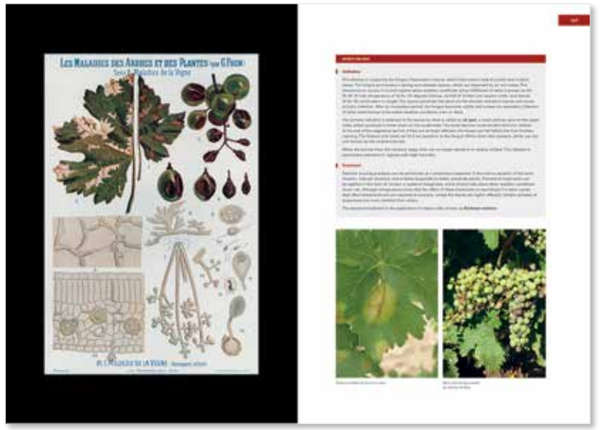
The chapter concludes with two innovative sections from the sommelier's perspective, who is too often oblivious to these matters and which should not be overlooked. The first is a general classification of the main systems for training grapevines. The second is an interpretation on the modern quality indexes that associate canopy density with fruit load, information developed by the highly knowledgeable and high-caliber experts Richard Smart and Fernando Martínez de Toda.



CHAPTER 8

PESTS AND DISEASES

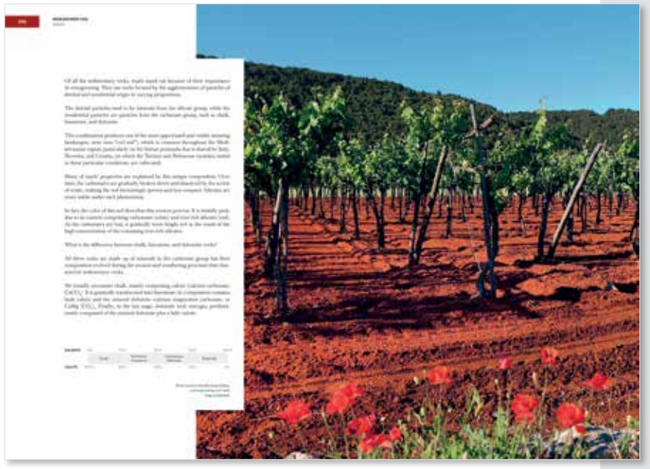
Throughout its life, a grapevine comes under great pressure from pests and diseases, which, if not controlled, harm the grapes and reduce yields. If an attack is serious, it will destroy vines and devastate vineyards. This is what happened when phylloxera, a small insect, almost completely decimated European vineyards in the nineteenth and twentieth centuries. In fact, due to its ability to produce sugars and its form of vegetative development, a grapevine is the ideal medium for hosting and feeding a large number of microorganisms and animals for which it is a resource for subsistence, including viruses and bacteria, mites, nematodes, and moths; even weeds, birds, rabbits, and wild boar become undesirable guests. When put into perspective, a wild boar is 100,000 times larger and 760,000,000,000,000,000,000,000 times heavier than a virus, but both are equally dangerous.



Armed with pesticides and viticultural practices, wine-growers fight off these assailants and pathogens by adopting different strategies, which can be, for example, conventional, integrated, or organic. How are they different from one another?

CHAPTER 9

WINE-GROWING SOIL



Geology (from the Greek *gê*, "earth," and *logos*, "knowledge"), is the science that explains the nature of the materials that comprise the earth. The relationship between the soil and wine is one of the most complex subjects, which at times can border on the esoteric. Do we really understand what minerals, rocks, stones, salinity, and chemical structure are? Does the plant absorb minerals?

In fact, we often read in the literature, informative websites, and, in particular, advertising about how aromas and flavors are supposedly directly related to the type of soil: "This wine tastes of slate," for example, or "there is a hint of graphite." These types of generalizing statements—which are accepted as valid and repeated insistently without thinking—are ambiguous and superfluous, but, despite having great appeal for consumers, they have little grounding in science.

This chapter attempts to clarify these concepts and to see what is true in them, and it sets out the current status of one of the most prominent and at the same time confusing subjects: In organoleptic terms, what does the soil give wine?

CHAPTER 10

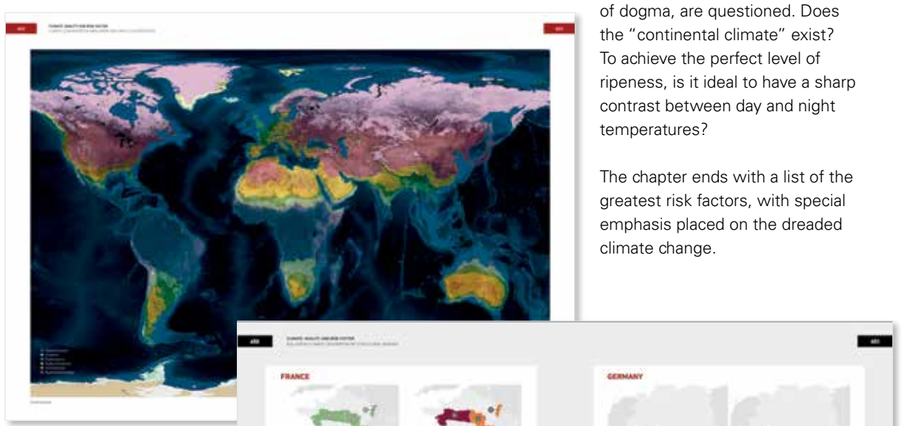
THE CLIMATE: QUALITY AND RISK FACTOR

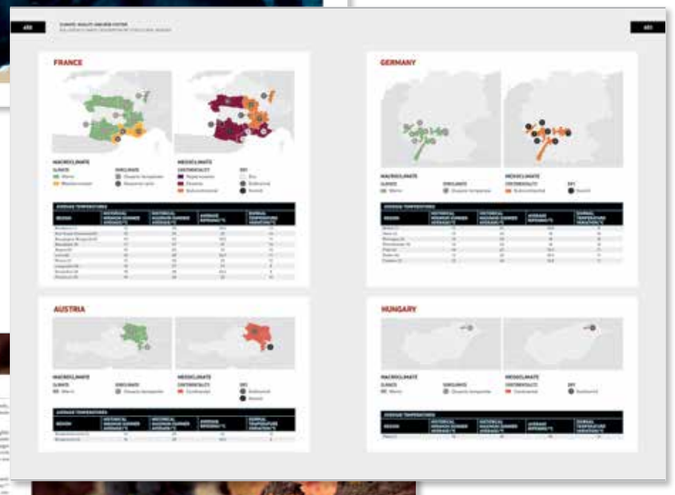
Climate is a key factor in a wine's quality and style. It is common to hear explanations, such as "this wine is from a cold climate and is, therefore, highly acidic and very refreshing" and "the weather conditions that year make this vintage one of the best."

Climate is a factor of nature—and consequently difficult to control—that without question leaves its particular stamp on wines.

This chapter sets out the *what*, *how*, and *why* of the relationship between climate and the flavor of wine. For this purpose, a thorough study of the weather conditions in the main viticultural regions of the world has been included, taking the works by the tireless climate researcher Salvador Rivas-Martínez as a reference. Moreover, certain points, which through repetition have almost reached the level of dogma, are questioned. Does the "continental climate" exist? To achieve the perfect level of ripeness, is it ideal to have a sharp contrast between day and night temperatures?

The chapter ends with a list of the greatest risk factors, with special emphasis placed on the dreaded climate change.





CHAPTER 11

THE HARVEST: THE ELABORATION OF THE GRAPES?

Grapes are unelaborated products. However, the decisions made at harvest time inevitably change the flavor and composition of the fruit. Would it be legitimate to consider that the wine-grower is *elaborating* the grapes?

In essence, the harvest is the most important time of the year for any winery. It is the time to gather the fruit and make the most of all the hours of effort and anxiety that go into tending the vineyard. It is a frenetic, intense, and exhausting period, although it is also idyllic and highly poetic. If it is carried out successfully, wine-growers consider it cause for celebration.

But the harvest is not arbitrary. There is the hidden side, a behind the scenes, where we can observe that it is a highly technical and professionalized process. The aim of such controls as "grape ripeness monitoring" is to decide the optimum time for harvesting, when the grapes are at their peak quality. For this purpose, there are different tests, both laboratory analysis and tasting (to assess organoleptic quality), to enable making the best decisions.

This chapter also explains different types of harvesting: mechanical, manual, at night, etc. All of these, as you will see, have their strengths and weaknesses.

CHAPTER 12

UNDERSTANDING VITICULTURE THROUGH WINES

This chapter recapitulates all the knowledge compiled in this book. In other words, any person who may have attentively read the book will be able to understand the case studies given in this section.

By choosing three noteworthy vineyards that produce exceptional wines—with each of them being separated from the others by more than 20,000 kilometers—all the parameters of quality and style explained in the book are defined and exemplified: location, climate, soil, pruning (and other viticultural practices), diseases and treatments, etc. Finally, these parameters have been analyzed and complemented by reliable information provided by the wineries themselves. This chapter brings us down to earth by applying theoretical concepts to the *real world*.