

Meaning and methods of this book: A guide for the reader

D. MAGHRADZE¹⁾, L. RUSTIONI²⁾, A. SCIENZA²⁾, J. TUROK³⁾, O. FAILLA²⁾

¹⁾ Institute of Horticulture, Viticulture and Oenology, Tbilisi, Georgia

²⁾ University of Milano, Department of Crop Production, Milano, Italy

³⁾ Bioversity International. Regional Office for Europe, Maccaresse, Roma, Italy

This book is an ampelography of selected native grape varieties of the six countries involved in the project 'Conservation and sustainable use of grapevine (*Vitis vinifera* L.) genetic resources in the Caucasus and Northern Black Sea region', coordinated by the European Office of the International Plant Genetic Resources Institute 'Bioversity International' (former IPGRI) in 2004-2008. The project aimed at the identification, collection, characterization and conservation of the rich diversity of grapevine genetic resources throughout the Caucasus and the Northern Black Sea region, as a basis to improve local viticulture and winemaking industry. The six partners of the project are Azerbaijan, Armenia, Georgia, Moldova, Russia and Ukraine.

Among the many activities developed in the framework of the project, which will be described in detail in the next chapter, it was decided to publish a regional ampelography of selected local varieties of grapevine (*Vitis vinifera* L.), with the object to provide the highest information about the range of biodiversity that can be traced in the local varietal assortments.

Different criteria were used in order to select the varieties. Priority was given to those that played an important role in the past local viticulture, but which are now endangered. Moreover, according to each country's specific situation, also local varieties less endangered, as well as minor accessions with an unclear historical background or obtained by local breeding activities, could be included. This assessment was taken to allow each country to describe its own germplasm according to its specificity. For practical reasons, the number of varieties per country was limited to approximately fifty.

Another criterion to be respected by the authorship was to include only the varieties available in the grapevine collections maintained by the institutions involved in the project. Moreover, the variety descriptions, as well as the photos, had to be original and derived from the specimens in the collections, most of which were renewed during the project.

A concise, as well as highly informative, description layout was agreed among partners, according to the aim of the work. Each variety had to be described not merely from the morphological point of view: information about its historical background, agronomic features and qualitative traits had to be given, as well as about its present and past importance.

For an appropriate comprehension of the data in the variety descriptions, some remarks need to be done.

'Ampelography' is a branch of viticultural science aiming at the description of grape varieties for their identification and characterization. The description of a variety though, is a very wide objective. In fact, a variety is the result of a process of human selection within a range of genetic variability, which in the specific case of grapevine, like of other fruit crops, has its origin in sexual reproduction or in gene mutation. In the first case someone (a viticulturist or a breeder) selects a seedling, spontaneously or intentionally born. After a positive evaluation, it is vegetatively propagated by cutting, layering or grafting. In the second case a vine shoot, showing a particular and distinguishable trait (compared to the other vine shoots) called "bud mutation", is selected and again vegetatively propagated.

So, it is important to underline that a variety may have its setting if a human being makes the decision to select a particular individual, according to its features (phenotype). But this is generally not sufficient, in fact the newly selected genotype, seedling or plant from a mutated bud has to be multiplied in order to spread the new variety throughout space and time. More than one viticulturist is involved in this second step, therefore the setting of a new variety is an ethnological process.

When does a new genotype really have to be considered a new variety? The answer is not easy. Probably, the first act is the naming of the new strain. We should believe that when a viticulturist names a new selection, he has recognized its peculiar traits. However, this is not enough: it is when a community of viticulturists shares the variety and adopts the same name that we should really consider that a new variety is set.

From its place of birth, a grapevine variety may spread more or less extensively. During its spreading, according to historical experience, it may change its name in many ways - for instance - undergoing more or less literal translations into the languages of the new regions, adopting a name that refers to its place of origin, changing the name completely according to attributes seized in the new lands or following other linguistic pathways. All these events give rise to synonyms for varieties, which sometimes are really different from the initial names.

During its spreading, a variety may be successful in a new viticultural land, while in its birthplace it may be neglected and abandoned. Similarly, in its birthplace, a local variety, which was extensively grown in the past, may nowadays be rare. As a result, for more than one variety, it is difficult, if not impossible, to ascertain the real birthplace and the original name. This is why more than one region may claim to be its true homeland. In other cases, even if the place of origin of a variety is commonly recognised, more than one country next to its homeland may consider it as an own local variety, due to the long historical importance of the latter in that land.

As an example 'Boyakhany' N. and 'Yagubi' Rg. grapes are described in the Azerbaijan chapter, but according to the Ampelography of Soviet Union (Limited distributed varieties, vol. 1, 1963 and vol. 3. 1966) these are Armenian varieties. A more complex example is that of 'Askeri' B. grapes will here described in the Azerbaijan chapter, but there are various theories on the origin of this variety including Azerbaijan (NEGRUL 1973), Armenia (NAZELI 1947 and 1962), Middle Asia (TROSHIN 2006) and Iran (IVANOVA 1986).

For these reasons, some varieties are included in more than one chapter and some countries have described several varieties that are not native.

According to these considerations, besides the 'Name' and possible 'Synonyms' of each variety, the 'Meaning of the name', if known, and 'Historical notes and cultural importance' are the first part of the variety description.

Based on the general morphology of varieties, the Russian ampelographer A.M. NEGRUL (1946) proposed a classification of grapevines into three main eco-geographical groups, named as '*proles*' (or later '*convar*'). Each one is divided into 'sub-*proles*' (or 'sub-*convar*') according to the following scheme:

Proles (<i>convar</i>)	Sub- <i>proles</i> (sub- <i>convar</i>)
<i>orientalis</i>	<i>caspica, antasiatica</i>
<i>pontica</i>	<i>balcanica, georgica</i>
<i>occidentalis</i>	<i>gallica, iberica</i>

The classification is based on the assumption that each eco-geographical group has a distinct phylogenetic derivation from different populations of wild grapevine (*Vitis vinifera* ssp. *sylvestris*).

While Negrul's classification was not extensively adopted by the western European ampelographers, it was completely embraced by the former Soviet countries. For this reason, all the varieties described in this book are classified according to Negrul's scheme.

After several cycles of vegetative propagation, a number of gene mutations is inevitably accumulated within a variety. The extent of the phenomenon is related to the number of propagation occurrences. So, for ancient and widely grown varieties, we have to consider a series of clonal lines, which may differ for a range of morphological and physiological traits. This kind of information is presented in the item 'Taxonomy and intra-variety variability'.

'Essential ampelographic description' focuses on the most important organs: shoot tips at flowering, mature leaf, flower type, bunch and berry at ripening. The authors have been requested to follow, as much as possible, the various editions of harmonised Descriptors for Grapevine (*Vitis* spp.), published by the IPGRI (1997), OIV (1983), UPOV (1999) and GENRES Project (2001). In these sections though, there is also a wide use of particular terminology, either adopted in historical references or accepted by the former Soviet school of ampelographers: the editors' decision was to maintain these terms in order to enrich the texts with original features.

'Phenology' was limited to the four main phases of the annual cycle of the plant. It is referred to the average period expected in the grapevine collection sites where data were recorded.

'Vegetative and yielding characteristics' and 'Juice characteristics' contain a range of data that vary for the different countries. In general, data are referred to the records in the collections and, for the widespread varieties, also to the most frequent growing conditions.

'Climate and cultivation requirements', 'Resistance to diseases and unfavourable weather' and 'Wine and grape characteristics' take into account, when available, the experience either acquired by the authors directly or through literature.

For what concerns the terminology used to describe the degree of susceptibility to fungal diseases, it should be underlined that only *Vitis vinifera* cultivars were described. This means that the term "resistance", when used by the authors to describe the cultivar behavior, facing to *Plasmopara viticola* or *Erysiphe necator*, should be more correctly referred to the concept of "high tolerance". We preferred, when used, to leave the term "resistance", in respect the original authors texts.

This book is the first voluminous ampelography devoted to Caucasian and Northern Black Sea grapevine varieties written in English. Before this, several works were published in local languages, in Russian or in European languages like French, German or Italian. It is mainly addressed to scientists and viticulturists with several purposes. In agreement with the aim of the project, our first intention is to promote the conservation and sustainable use of grapevine genetic resources in the region. We intend to encourage the 'on farm conservation' of the elite germplasm varieties in the native countries. We believe this is the proper way to conserve biodiversity and to evaluate its yielding and qualitative potential. Moreover, we aim at encouraging scientists to evaluate the wide variability in the variety assortments described in this ampelography. Such variability should be considered as a source of useful genes for a grapevine breeding aiming at quality improvement, diversification and resistance to biotic and abiotic stresses.

In the history of human civilization, the role of viticulture and its products, wine above all, is well known, as well as its importance nowadays from many points of view: economical, cultural and social. In conclusion, we hope that the efforts that the partners of the project together with the authors of this book have made until now, for conservation and documentation of this unique germplasm, may be useful for the future of the grapevine. It is actually to the grapevine that

we owe this tribute; as for thousands of years it has never stopped providing human beings with a wide range of delicious drinks, foods as well as pleasant shade and beautiful ornamental lianas in courtyards and gardens.

References

- ANONYMOUS; 1962: Armenian State Agricultural Publishing House, Yerevan (in Armenian and Russian).
- GENRES; 2001: Primary and secondary list of descriptors for grapevine cultivars and species (*Vitis* L.). Institute for Grapevine Breeding Geilweilerhof, Siebeldingen, Germany.
- IPGRI; 1997: Descriptors for Grapevine (*Vitis* spp.). Rome.
- IVANOVA, E. B.; 1986: Askeri. In: A. I. TIMUSH (Ed.): Encyclopedia of Viticulture. Moldavian Soviet Encyclopedia, Vol. 1, 117-118. Chisinau.
- NAZELI (ASKYARI); 1947: In: M. G. TUMANYAN (Ed.): Ampelography of Armenia SSR, 80-83. Armenian Academy of Sciences, Yerevan (in Armenian and Russian).
- NEGRUL, A. M.; 1946: Origin of the cultivated grapevine and its classification. Ampelography of the USSR (Ampelographia SSSR). Pishchepromizdat. Moscow. Vol 1, 159-216 (in Russian).
- NEGRUL, A. M.; 1973: Ampelography of Azerbaijan SSR, 491. Azerbaijan State Publishing House, Baku (in Russian).
- OIV; 1983: Descriptors for grapevine varieties and *Vitis* species. O.I.V. (Off. Int. Vigne Vin), Paris.
- TROSHIN, L. P.; 2006: The best grapevine cultivars of Eurasia. ALVi-Design. Krasnodar (in Russian).
- UPOV; 1999: Grapevine (*Vitis* L.) Guidelines for the Conduct Tests for Distinctness, Uniformity and Stability. Geneva.

Acknowledgements

The editors thank Dr. Marina OLWEN FOGARTY and Dr. Francis FOGARTY for the accurate and passionate revision of the English text.

This publication is supported by:

- COST - European Cooperation in the field of Scientific and Technical Research, in the framework of the Action FA1003: "East-West Collaboration for Grapevine Diversity Exploration and Mobilization of Adaptative Traits for Breeding".
- Bayer CropScience S.r.l., Italy
- VCR Vivai Cooperativi Rauscedo, Italy
- Norsk wax, Norway
- Della Toffola Group, Italy