

# NEW *VITIS* PROPOSAL FOR COUNCIL REGULATION (EC) N° 870/2004

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## **Introduction**

The Council Regulation (EC) N° 870/2004 on the conservation, characterisation, collection and utilisation of genetic resources in agriculture has been adopted on 24 April 2004. Among others the ex situ and in situ conservation of genetic resources in agriculture should be promoted as well as the use of for a long time ignored and therefore under-utilised varieties in agricultural production. Knowledge about genetic resources, their origin and characteristics should be increased. Information on existing institutions and activities carried out in the field of genetic resources management should be gathered and made available at an international level, particularly the developing countries. Widely accessible inventories (databases) should be developed and promoted “with particular reference to ... an inventory of ex situ collections held in European gene banks ... called EURISCO” (EC 2004).

With regard to the achievements of Genres081 (<http://www.genres.de/eccdb/vitis/>) and the urgent need of a follow up to safeguard and improve the sustainable use of *Vitis* germplasm the submission of a proposal for action is planned, which is in line with the conception of the EC and the aims and strategies of the Global Plan of Action: “Conservation and utilization strategies at the community, national, regional and international levels are most effective when they are complementary, and as appropriate integrated with each other in planning and implementation in order to achieve maximum effect. Conservation and use of PGRFA require a mix of interrelated approaches, including in situ and ex situ efforts” (Global Plan of Action, p. 14/15 <http://www.fao.org/WAICENT/FaoInfo/Agricult/AGP/AGPS/pgrfa/gpaeng.htm>)

## **Planned actions**

### **1. On-farm preservation of autochthonous grape varieties**

**Background:** Prospecting for old grape varieties and their clones in old vineyards (up to more than 100 years old) is carried out more or less intensively in nearly all wine growing countries. A comprehensive knowledge about the varieties’ agronomic features is to be achieved by cooperation with wine growers. Phenological data, yield characteristics, wine quality and tolerance to abiotic and biotic stresses could be observed on a greater number of plants providing useful data to interested growers. The variety specific agronomical data will be accessible via the European *Vitis*-database through linking of the cultivation site and the there grown accessions. The cultivation site can be an old vineyard or a newly to be established one.

#### Work to be done:

- localisation of suitable old vineyards planted with endangered grape varieties or outstanding clones of cultivars still in use.
- identification and inventory of grape varieties in these old vineyards
- SSR-marker analysis, at least for doubtful grape varieties
- test on virus infestation
- selection of the morphologically most diverse virus free grape variety clones,
- determination of growers to cooperate, carrying out on-farm (“on-winery”) conservation and evaluation

- recording of agronomic traits
- registering of the data in the European *Vitis*-database
- offer of virus free material to clone breeders and winegrowers
- safeguarding and double conservation of the material in conservatories (private, governmental)

## 2. Data acquisition for the SSR-marker database within the EU-*Vitis* database:

**Background:** Particularly old grapevine varieties and those which have been widely spread are often known under various local names (synonyms). This is the reason why the same variety occurs under different designations in grapevine collections. The *Vitis* International Variety Catalogue (<http://www.genres.de/idb/vitis/vitis.htm>) lists dozens of synonyms for varieties like the widely grown table grape Dattier de Beyrouth (106), the old prolific variety Weisser Heunisch, called Gouais en France (135), Pinot noir (111), Pinot gris (98), Palomino fino (68), Furmint (61), Sangiovese (48), etc. In addition it happens that the same name designates different varieties. In this case the synonymous names are called homonymes.

Furthermore owing to a long tradition in plant material exchange between people, wine growers, botanical gardens, grapevine collections, breeders and researchers, and the high probability of wrong labeling or accession mix up, misnaming is a real problem. Misonaming is estimated between 5 and 10 % in the worldwide grapevine collections.

But the identification of synonymous and homonymous grape varieties and trueness-to-type assessment are essential for (a) *Vitis* genetic resources management, e.g. the exchange and conservation of grape material, (b) to put research results into practise and (c) to provide reliable data to breeders.

Microsatellite markers have proven to be an efficient and useful tool for this purpose. They are abundant and random distributed in the genome and are subjected to co-dominant Mendelian inheritance. The partners of GENRES081 agreed on the utilisation of 6 high polymorphic SSR-markers: VVS2, VVMD5, VVMD7, VVMD27, VrZAG62 and VrZAG79, which were applied on 49 varieties (51 accessions). It turned out that by using grape varieties as length markers, allele length of varieties could be compared independent of laboratories, equipment and protocols.

To produce reliable data at least two laboratories have to carry out the same analysis.

### Work to be done:

- accession based microsatellite analysis of national *Vitis* germplasm (addition of better markers has to be discussed)
- collection of available SSR-marker data
- coding and comparison of the data
- coordinated microsatellite analysis where conformity was not reached
- filling the SSR-marker database with consistent data
- elaboration and utilisation of a microsatellite comparison program for grape variety identity assessment in grape variety collections
- long term objective: safety duplication of endangered genotypes

## Study and preservation of *Vitis silvestris* germplasm

**Background:** Owing to environmental changes and impact of mankind *Vitis silvestris* is highly endangered in their natural habitats. Populations are steadily decreasing and even disappeared at many sites. Recent studies prove the genetic relationship between *Vitis silvestris* and reputed varieties like Riesling, Burgunder and Traminer. Wine quality, frost tolerance and resistance to indigenous diseases e.g. Red Brenner. In the Rhine valley the most northern distribution area of *Vitis silvestris*, nearly all populations have been reduced to several or even single plants. At these sites a natural propagation is excluded. The protection of the autochthonous populations, the increase of population sizes and the reintroduction of *Vitis silvestris* in adequate sites are necessary to safeguard this highly endangered species and to incite evolutionary processes.

### Work to be done:

- assessment of *Vitis silvestris* sites
- inventory of the *Vitis silvestris* vines at those sites using GPS
- collection of cuttings / seeds from the most different vines
- propagation and preservation in conservatories
- description of morphological, recording of resistance to biotic and abiotic stress factors
- characterization of *Vitis silvestris* genepool by SSR-marker analysis. Assessment of the genetic distance to other European occurrences
- identification of the most suited (historical) sites for reintroduction
- replanting of 1 to 2 year old vigorous *Vitis silvestris* vines. Establishment of a minimal viable population size to enhance the natural evolution process
- management and monitoring of *Vitis silvestris* populations in cooperation with forest and hunting authorities

#### **4. Description of old, endangered and autochthonous grape varieties**

**Background:** Within Genres081 description focussed mainly on autochthonous and for a long time neglected varieties. 802 varieties have been described by 54 primary descriptors and 432 varieties have been described with 14 secondary descriptors. A continuation of variety description is envisaged. The utilization of the recently harmonized UPOV, IPGRI and OIV descriptors is planned.

EC. 2004: COUNCIL REGULATION (EC) No 870 / 2004 of 24 April 2004 establishing a Community programme on the conservation, characterization, collection and utilisation of genetic resources in agriculture and repealing Regulation (EC) No 1467 / 94. Official Journal of the European Union 30.4.2004

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