NATIONAL INVENTORY OF GRAPE GENETIC RESOURCES IN GERMANY

(JANUARY 2007 - MARCH 2010)

Andreas Jung and Claus Fischer (ARGE Jung+ Fischer GbR)

After an open contest, the Federal Agency for Agriculture and Food commissioned the private consortium ARGE Jung+ Fischer GbR to execute the national inventory of grape genetic resources in old German vineyards. The survey was projected for 3 years (January 2007 - March 2010). In the medias, a petition for the announcement of old vineyards was published and sent to viticulturists, breeders and professionals working in wine industry, wine science and wine administration. Furthermore, the EU-wine registry was a useful source to filter owners of old vineyards. Depending on the federal state laws for data protection, the wine administration or the consortium contacted the owners to give permission to inventory their vineyards with the purpose of safeguarding old, rare varieties. Altogether, the feedback of owners and informants as well as extensive field search finally allowed to localize and inspect 1021 sites. 769 locations of vineyards and old house vines featured the conditions of the occurrence of vines on own roots and older than 60 years. 654 cases comprised old historic, often variety-mixed vineyards, aged between 60 and more than 200 years. These sites were first described by geographic means. In a second step, each population of old vines was fully inventoried by investigating the variety identities and counting each single varietal vine as well as judging the phytosanitary states and the risks of eradication. It is the first time in grape history that a national inventory lead to a complete overview on the variety mix and the absolute frequencies of all varieties detected in old German vineyards.

Altogether, the ampelographer Andreas Jung registered 345.977 vines which were visually discriminated on the variety level and identified by classic ampelographic means. The variety types were photographically documented. Unidentified types were additionally characterized by microsatellite analyses at the 6 standard markers in 2 Swiss labs. Microsatellite analyses was not as helpful as expected, especially concerning the rare, neglected and extinct varieties, that miss living references. Nevertheless, nearly each of the firstly detected unknown types could be recognized and identified by referring to defined ampelographic references in historic and modern ampelographies. In sum, 351 distinct cultivars were differentiated in the fields and identified. 242 varieties are historic in the sense of being introduced since at least 110 years. 16 of these historic varieties are old crossings from the 19th century, others can be followed back to the Middle Ages. 109 cultivars refer to modern varieties, bred in the 20th century or hybrids, 5 were nameless seedlings. 56% of the historic cultivars are used for wine making, 15% are table grapes and 28% have dual-use. 52 old vineyards (8%) contained more than 15 varieties, with a maximum of 34 varieties. 103 plots (16%) contained old vines of one single variety only. The most frequent, non-classified variety is the blue Elbling on range 12 with 1981 vines left. Only 25 varieties (10%) are more frequent than 0,1% of the total of inspected vines. 50% of the varieties are represented by 5 or less individuals, 66 varieties (27%) by one single surviving vine only. 105 varieties were found at only one site each.

119 varieties (49%) belong to the group of firstly detected, already extinct, neglected, confused, wrongly named or even officially not existing varieties. This was the case for Kleinberger (Kerner), Adelfränkisch (Babo), Leany szölö (Pulliat), Gros Bourgogne (Viala), Gouais no (Guicherd), Möhrchen (Babo & Metzger), Möhrchen (Trummer) or Oriou (Viala). This list can b continued. All neglected varieties have well defined historic identities, but they were assumed to be just synonyms of more trivial varieties. Therefore, their true identities were deleted. 86

newly detected varieties (35,5%) are not represented in German grape collections anymore. This means that these autochthonous varieties have been nationally extinct.

Comparing the different wine regions, the area of Badische Bergstraße is the region with the highest regional density, the most rich variety-mixed vineyards and the highest absolute numbers of old, neglected varieties. 82 of a total of 100 historic varieties in Baden were found in this quite small region around the city of Heidelberg. On the right side of the Rhine river, we can say: the older the vineyards, the richer they are in old forgotten varieties. Typical for the warm Upper Rhine valley are Hunnish varieties, originally imported from Hungary, the Tokay, Slavonia and possibly Crimea (Tsimilanski Chernyi). Swabia is famous for old southern alpine grapes, imported by the Walser sutlers from Alto Adige or Western Pannonia and brought to Switzerland, Swabia and the High Rhine during medieval times. Examples are Schiava Grossa, Schiava Gentile, Lagrein, Urban, Babic, Blatina, Bettlertraube and others. Franconia has kept a lot of old Frankish grapes, originally imported by Frankish settlers and monks colonizing the Eastern Alps and the Carpathians since the 9th century. Some of them such as Lafnetscha (from Lafnitz in Burgenland, Austria), Agostenga, Süßschwarz (Pierre grave), Béclan, Hartblau (Oriou), Chatus or Uva Rara are reported from the Piedmont, the Western Alps or Champagne, but came to Franconia from the East along the Danube river. The old vineyards in Eastern Germany show the whole mix of recent varieties from Eastern Europe. This is due to repeated strong winter frosts in these regions that caused variety imports from socialistic countries to fill up the gaps. Only a few sites are still dominated by Elbling and going back to the 19th century. These findings always contain loads of neglected varieties such as Black Heunisch, blue Ortlieber, Gross Burgunder, Mörrchen, Harslevelue, Gros Meslier and others. Some could have been introduced from Moravia by Slavic Wends to the Elbe and Saale rivers and to the Steigerwald. In Rhineland-Palatinate, about 90 historic varieties were detected, mostly in large vineyards of Portugieser-vines. They contain Lemberger, St. Laurent and extinct Pannonian varieties such as Black Zimmettraube and Hudler, but also foreign varieties like Brachetto, Chatus, Perricone, Cornet or Hrvatika. The cuttings were directly imported from the Slovene Balkans in the early 1920ies. At the river of Nahe, 2 variety-mixed vineyards contain old Frankish variety imports such as Vogelfränkisch, Addfränkisch and the white Vogeltraube. vines of Orleans and a seedling survived in the historic vineyard where Hildegard von Bingen and other monks grew Hunnish-vines from the 11th century until 1550. Probably, these wildered vines are the oldest vines in Europe. Compared to the varietal richness of the Upper Rhine valley, the Middle Rhine and the Mosel area are green deserts, where mostly Riesling is growing. Mostly 1 and never more than 4 varieties could be detected even in 200 years old vineyards. Just Dameron, Vogelfränkisch and Kleinberger are rare perls. The oldest house vine of Germany is a 400 hundred years old Agostenga in Franconia, followed by a tree-like, 350 years old Luglienga Bianca near Dresden and a 350-400 years old Kleinberger in the Mosel area.

322 accessions of 147 rare varieties were collected and given to the German Grape Gene bank.

It was a surprise that German old vineyards are still so rich in non-classified, completely neglected varieties. Like the green Kanigl or the Hartalbe (Alsacian Olber), they often represent formerly missing living references of varieties, which were only known from old variety paintings. On the other hand, the findings of Pamid (Härisch rouge), Bouvier (German Oliver), Neuburger (white Veltliner) or Tsimliansky cherny (Sibirian grape) could reveal the historic identities of more modernly known varieties. The varietal associations indicate repeated imports from continental Eastern Europe. This should not be only valid for German and Swiss varieties, but also for adjacent regions in the East and North of France and the southern Alps.

This study was financed by the Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz, Germany.