On farm conservation of grapevine in Croatia

Edi MALETIĆ (University of Zagreb, Faculty of Agriculture Zagreb) and Goran ZDUNIĆ (Institute for Adriatic Crops and Karst Reclamation, Split)
Viticulture in Croatia today

- 20,941 ha in total;
- Average of vineyard - 0,26 ha (0,51 ha/producer)
- 41,118 grape producers, even 93% less then 1 ha;
- 1,624 wine producers, cca 4,500 labels, production in total 575,389 hl of wine
- 75 % of wine under AOC system;

<table>
<thead>
<tr>
<th>regions</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Continental Croatia (Slavonia &amp; Danube)</td>
<td>30,5</td>
</tr>
<tr>
<td>West Continental Croatia (Croatia Uplands)</td>
<td>22,2</td>
</tr>
<tr>
<td>Coastal Croatia (Istria, Kvarner &amp; Dalmatia)</td>
<td>47,3</td>
</tr>
</tbody>
</table>
Viticulture regions and climatic zones

3 regions:
- Western Continental Croatia;
- Eastern Continental Croatia;
- Coastal Croatia (Istria, Kvarner and Dalmatia)

12 subregions...
Graševina, Malvazija & Plavac mali - major grape varieties in Croatia
Grapevine varieties erosion

• ...many native varieties disappeared. Also, after *Philloxera* time new varieties introduced from other countries. Number of varieties continuously decreased to the end of 20th century.

• many old varieties, used to be important missed...

• Now, 250 varieties, ≈ 130 of them native. Mostly rare, neglected, 15 economically important
Start with preservation activities (since 1997)
Inventory of vinegrowing regions - visiting old vineyards...
Autochthonous grape varieties

Literature search:
More than 400 cultivars in use (pre–phylloxera time)!
Establishing *ex situ* collection of Croatian native varieties since 2001: Faculty’s experimental field Jazbina (National collection: 140 accessions, 3–7 plants/variety), 2 regional collections: Split (Dalmatia) and Poreč (Istria)
Example of revitalization and growers respond

Revitalization of some rare and old varieties – a case study: Crljenak kaštelanski (syn. Zinfandel) and Malvasija dubrovačka (syn. Malvasia delle Lipari). Good example why this work is valuable...
Malvasija dubrovačka

From $\approx 300$ vines (2002) to over then 50,000 vines planted (2010);

2009 International Malvasia wine competition (Mediterranean Malvasias): Malvasia dubrovačka no. 1 out of 250 samples!
Revitalization process of Tribidrag (Crljenak): since 2004

From 25 survived vines (2002) to 80 hectares, 12 wine producers (2016)
## Feedback from growers and others

<table>
<thead>
<tr>
<th>Rare variety</th>
<th>Potential Partner for on farm conservation (family winery)</th>
<th>Commercial wine available</th>
<th>Growers associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trnjak</td>
<td>Grabovac, Đuzel, Franić</td>
<td>Yes; 2 producers</td>
<td>Imotski</td>
</tr>
<tr>
<td>Svrdlovina</td>
<td>Mladen Anić</td>
<td>Yes; 1 producer</td>
<td>Zadar</td>
</tr>
<tr>
<td>Palagrůžanka</td>
<td>Ante Ivčević</td>
<td>No</td>
<td>Island of Vis</td>
</tr>
<tr>
<td>Crljenački viški</td>
<td>Ivčević, Senjanović</td>
<td>No</td>
<td>Island of Vis</td>
</tr>
<tr>
<td>Palaruša</td>
<td>Antonio Lipanović</td>
<td>No</td>
<td>Island of Vis</td>
</tr>
<tr>
<td>Ninčuša</td>
<td>Anton Kovač</td>
<td>No</td>
<td>Kaštela</td>
</tr>
<tr>
<td>Babica</td>
<td>Neven Vuina</td>
<td>Yes; 1 producer</td>
<td>Kaštela</td>
</tr>
<tr>
<td>Zlatarica vrgorska</td>
<td>Gašpar</td>
<td>Yes;</td>
<td>Vrgorac</td>
</tr>
<tr>
<td>Dobričić</td>
<td>Kaštelenac, Zanchi</td>
<td>Yes; 4 producers</td>
<td>Island of Šolta</td>
</tr>
<tr>
<td>Bilina Privlačka</td>
<td>Marko Glavan</td>
<td>No</td>
<td>Privlaka (Zadar)</td>
</tr>
<tr>
<td>Sokol</td>
<td>Žvonko Sever</td>
<td>Yes; 1 producer</td>
<td>Klanjec</td>
</tr>
<tr>
<td>Surina</td>
<td>Giorgio Clai</td>
<td>Yes; 1 producer</td>
<td>Istria</td>
</tr>
</tbody>
</table>
Announcement of the initiative

- Meetings of professionals
- Sabatina 2016
- 300 wine exhibitors
- Workshop about rare native cultivars „Old grapevine varieties – innovative wines”
- Started in 2010
- Last year presented Trnjak (syn. Rudežuša)
- 6 growers/wine makers presented wines
- New scientific findings presented
- Technological and commercial aspect discussed
- Practical aspect discussed
- Market potential
Announcement of the initiative

- Meetings of professionals
- Wine Exhibition „Vinski podrum” Split 2017
- 85 wine exhibitors (wine producers)
- Workshop about rare varieties
- Tribidrag, Dobričić, Svrdlovina, Malvasia dubrovačka
- History, technology and other aspects discussed
- Wine makers presented wines
Palagružanka b.

- A very rare cv from island of Palagruža (seedling?);
- Saved by A. Ivčević, a small wine producer from the island of Vis;
- He started to graft and established a new vineyard, start to produce a wine;
- One of 14 selected agric. producers in EU project „Natura“ (supported by Deutsche Bundesstiftung Umwelt), exhibition in EU-parlament (Bruxelless)...
- Very limited production, sold as „exclusive“ wine
More other examples...
Use of descriptors – approach for identification and characterization

• First step checking for true to type – matching the morphological/commercial profile with profile described in old ampelography literature (mostly with Dalmatian ampelography, Bulić 1949)

• Names – synonyms - homonyms

• OIV descriptors limited number (shoot, mature leaf, bunch and berry; time of budburst, time of ripening)

• 6 SSR markers of Genres081 + 3 SSR GrapeGen06

• Safety duplicate in Croatian National germplasm collection
Report about national Croatia’s regulation

• Wine law (National gazette No 96/03, 25/09, 22/11, 55/11, 82/13, 14/14)

• Croatian national list of grapevine cultivars (National gazette No 53/14)

• Every wine on the market has to be produced from one or more cultivars listed in National list

• 196 grapevine cultivars

• There are about 10-15 varieties not included in National list

• Process to include some old variety in National list is according to Ministry of Agriculture; few months
Conclusions

• On farm conservation could be very valuable for securing duplicates of grapevine cultivars in Croatia

• There are about 130 grapevine cultivars with presumed Croatian origin; among them 20-30 cultivars have commercial potential

• There are interest of Croatian wine producers for on farm conservation driven mainly by market niche, technological potential

• Wine growers and consumers in Croatia like old varieties - three main grapevine cultivars (Graševina, Malvazija istriana and Plavac mali) are traditional/native cultivars encompassing about 50% of wine production

• Definition of rules for on farm conservation need to be listed

• Joint EU initiative for old rare grapevine cultivars and possible common wine labeling on market could be of great importance for conserving – some producers are very interested in it;
Thank you for your attention

JKI, ECPGR, October 10, 2017