Efficacy Transformation Conventional Production in Organic Grape and Wine Production
Efikasnost transformacije konvencionalne proizvodnje u organsku proizvodnju grožđa i vina

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Organic and conventional production differs in methods applied to achieve same goals.

Organic produced grapes come from vineyards where the production methods are based on organic fertilizers and organic plant protection agents with extensive use of natural processes which helps such a production.
Organic Grape and Wine Production

- National Law on Organic production regulate all aspects of organic production.
- Natural materials and natural processes allowed in this production are listed and certified and in compliance with EU regulation, as defined by the Council Regulation (EC) No 834/2007 and No 889/2008 on organic production.
Organic Grape and Wine Production

• Organic grape production is specific and exception since up to now there is no substitute for Copper and Sulfur, which are natural but not of organic origin.

• Therefore, the main goal for many researchers in this area is to find efficient organic alternative to these classic fungicides or, at least, to lower applied quantities.
Organic Grape and Wine Production

• As a difference from fungicides, variety of organically produced insecticides are available on the market and can be used.
• Insecticides of plant origin, vegetable oils, powders and insecticidal soaps, as well as natural enemies, parasites and predators.
SPECIFIC APPLICATION

• Fungicides must be applied preventively since there is no curative action
• Insecticides are selective, with a narrow range of effects and of lower toxicity,
• Grape protection is based on preventive measures (location, variety, pruning, optimal fertilization…) that should weaken the infestation and then apply allowed pesticides.
Organic Grape and Wine Production

- Weeds are manageable with variety of cultural means such as mechanical weeding, mowing weeds or spraying with organically produced herbicides
Material and methods

• The experiment was set in two localities:
  – Radmilovac (Vineyards of Grocka) and
  – Gudurica (Vineyards of Vršac)
Material and methods

- Radmilovac (Vineyards of Grocka)
Material and methods

• Gudurica (Vineyards of Vršac)
Cultivar in Radmilovac was Riesling/Kober 5 BB in 1 ha vineyard
Radminovac

Soil was cultivated between rows. Weeds in the row was mown.
Cultivar in the Vineyard in Gudurica was Riesling Italico on 3 ha. Soil was plowed between rows. Weeds in the row was mown.
Planting density was the same in both vineyards: 3330 vine /ha
Growing system were asymmetrical cordon (planting established in 1995) and double Guyot system (planting established in 1970)
• Data were geostatistically processed, each sampling spot was registered by a GPS device.

• Soil properties were examined at the depth of 30 and 60 cm (pH in H2O, pH in KCl, accessible P2O5 and K2O as well as humus) in 2009.
USED PLANT PROTECTION AGENTS

- Copper as copper hydroxide
- Sulfur based preparations
- Natural pyrethrum based insecticides
• No Botriticide fungicide was applied
• Better aeration was provided by pruning during vegetation
• Chemical and senzor analysis of wine produced was carried out in the Brewing Technology Laboratory, Faculty of Agriculture BU.

• The same procedure was implemented in wine production in 2009 and 2010.
Results

• During 2008, grapes in both localities were protected with conventional pesticides.
• In 2009 there were eight treatments with the total quantity of 6.8 kg of copper in Gudurica and 6 treatments in Radmilovac.
• Limit of 6 kg of Copper was exceeded due to heavy hay.
• In 2010 there were six treatments with total quantity of 6 kg of Cu at both locations in 2010.
Results

• In 2009 Pyrethrum was applied twice at both localities. In 2010 it was used once.
• Total sulfur in 2009 is 17.5 kg and in 2010 is 13.9 kg in 6 treatments in both localities
• Preventive treatments were carried in 2009 and 2010, and protection was successful.
• Attacks of grape berry moths and other pests were below the level of harmfulness.
• Sperman’s Test was used to show correlation between land properties and yield indicators.
• Correlation was determined between the number of bunches and pH in H2O at both depths, number of bunches and pH in nKCl at both depths in the Vineyards of Grocka
Yield per vine and number of grapes per vine
Vineyard of Grocka – Riesling
Yield per vine
Vineyard of Vršac Riesling Italico
Number of grape per vine
Vineyard of Vršac Riesling Italico
Rizling rajnski

Rizling italijanski
WINE PROPERTIES

• wine of cultivar Riesling Italico was clear, of discrete yet “muffled”, underdeveloped taste, moderately hard with just a bit of the cultivar aroma

• Riesling produced better wine, with cultivar aroma, full, flavour with a certain amount unfermented sugar.
Wine testing was organized 2 times and participants were not able to distinguish organic wine as better quality compared to conventional wine.
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Conclusion

• The achieved results showed that procedure of converting convencional grape production into organic one was efficient.
• Thank you