

December 2021



Uncorking rural heritage: indigenous production of fermented beverages for local cultural and environmental sustainability (2018-1-0682)

Terroir study in Tikveš vineyards
Vineyard pilot study with e-tikvešvineyard platform







Republic of North Macedonia COUNTRY WITH UNIQUE TERROIR



Terroir:

The special character that a wine is thought to get from the particular place where the grapes were grown to make it:

• The French tend to talk lyrically about the terroir, the characteristics given by particular climate and soil, while Americans worship winemakers instead.

The particular environment in which the grapes for a wine were grown, which give the wine a special character:

- The main difference between the two wines is their terroir, the elusive combination of soil, vine stock and planting habits of a particular vineyard.
- The Veneto is remarkably diverse divided into over 20 subzones with a variety of terroirs.
- The idea of terroir is the notion that topography, soil and climate can make two wines taste different, even if those wines were made from the exact same grape and grown within a football field of each other.
- "Every time I taste a French wine, I can taste the soil, the terroir," he said
- He is among the most dedicated advocates of artisanal wineries and the notion of terroir.





Introduction

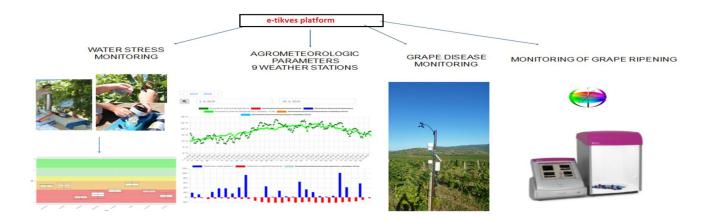
Digitalization in viticulture and winemaking is more and more used around winegrowing regions.

- It enables to better control vineyard technology, winemaking and it speed up information transfer to end user wine producers.
- There are many decision, from vineyard to bottle' and digitalization is a new tool to quickly communicate with producers in order to react ,in time' and with right decisions.
- One of the aim of this project aim is to set up a platform, which will be used to better control Macedonian vineyard, characterization of 'terroir' (different vineyard locations) from Tikveš region, meteorological data, water stress, pest disease, grape maturation and each winegrower profile.



Tikvesh winery is involved in the project Uncorking rural heritage: indigenous production of fermented beverages for local cultural and environmental sustainability (2018-1-0682) and these are the benefits:

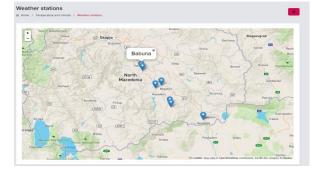
- Digitization of identified vineyards by monitoring agrometeorological parameters, soil properties, water stress, grape ripening, and control monitoring of vineyard pests & diseases.
- In-depth knowledge of specific terroirs.
- Education of farmers and promotion of sustainable viticulture with better use of water and lower use of plant protection products.
- Creation of a e-tikvesvineyards web platform with an archive of all meteorological parameters, monitoring of water stress, grape ripening and pest control.



- Better monitoring of grape ripening (introduction of new methods based on berry colour, sugar loading and berry tasting)
- · Better monitoring of vine pests and diseases in Tikves winery.
- Two PhD students from Tikves winery are involved in the project activities.
- Participation in a transnational project contributing to the development of the local economy: SMART organic viticulture;
- Soil analysis and establishment of a soil laboratory in Tikves winery;

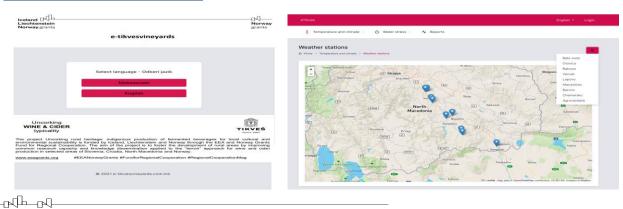
E-tikvesvineyard platform - e-tikvesvineyards.com.mk

- E-platform setup aims to display data from 9 meteorological stations in Tikves winegrowing region.
- Collecting and displaying meteorological data which include: temperature and climate, precipitation, wind speed, humidity, air pressure, solar radiation
- Average temperature per day, Precipitation per week, Water deficit/surplus per week, Minimum day temperature, Winkler/Huglin index, Cool night index, Number of days temperature exceeds 30 ° C (hot days), Number of days temperature exceeds 30 ° C (very hot days), Evapotranspiration, measured water stress type, measured water stress value Brix per vintage.
- The metostation data is available through the API code. Each meteostation has its own API code. The data is updated every 10 minutes. All historical data is available. From the moment the station is set up, all data is stored on the server.

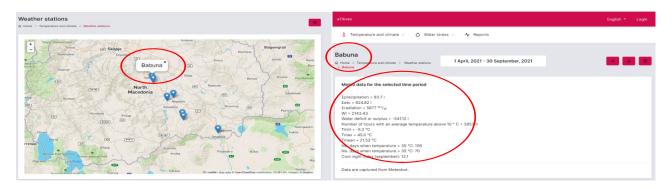


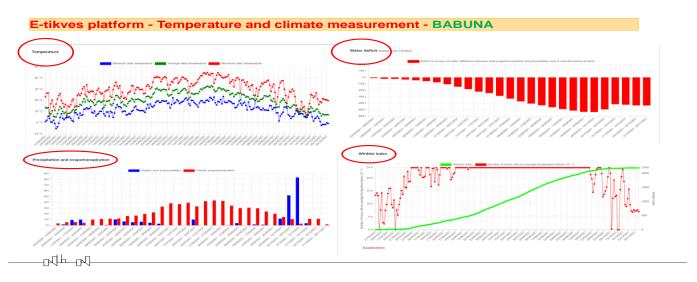
- The e-tikvesvineyard platform is still under reconstruction and upgrade.
- We are planning further updates and include:
 - Module for displaying the results of soil analysis and link to pest&disease management.

e-tikvesvineyards.com.mk

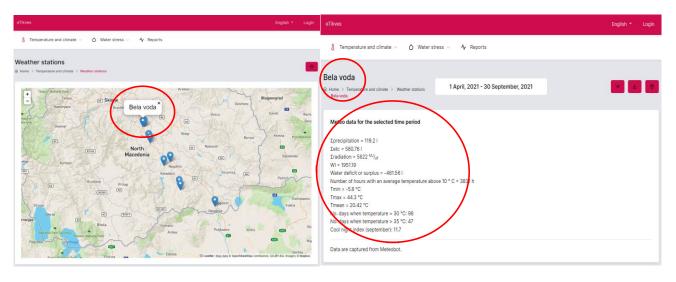


e-tikvesvineyards platform – Temperature and climate - BABUNA





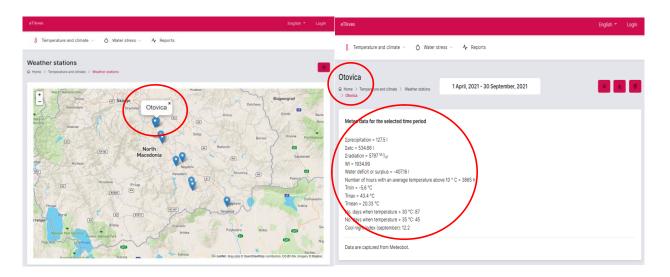
e-tikvesvineyards platform - Temperature and climate - BELA VODA



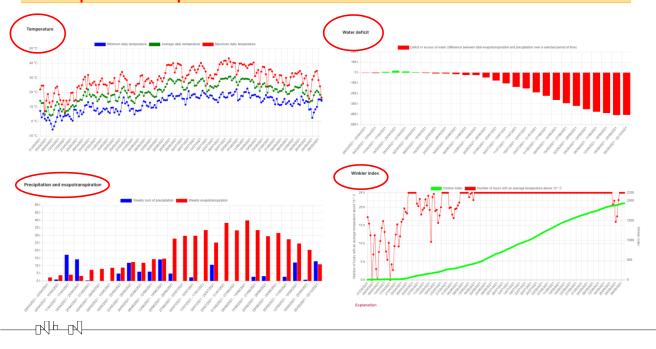
E-tikves platform - Temperature and climate measurement - BELA VODA



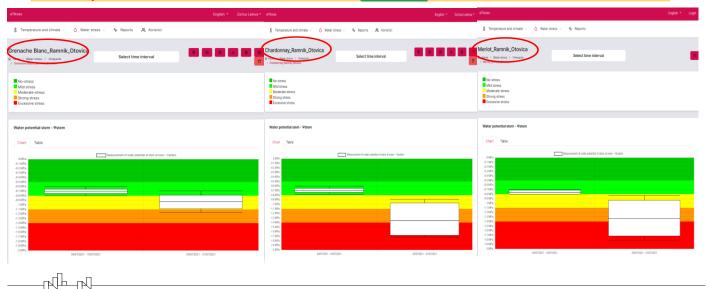
e-tikvesvineyards platform - Temperature and climate - OTOVICA



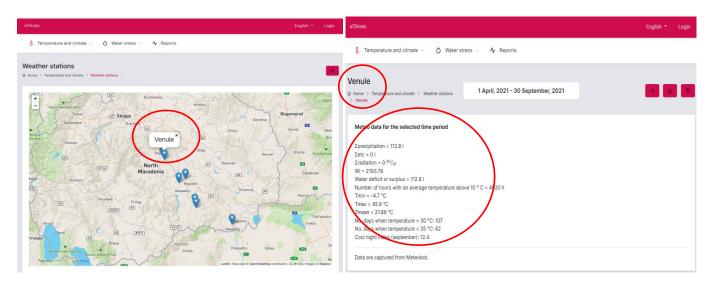
E-tikves platform - Temperature and climate measurement - OTOVICA



E-tikves platform - Water stress measurement - OTOVICA



e-tikvesvineyards platform – Temperature and climate - VENULE

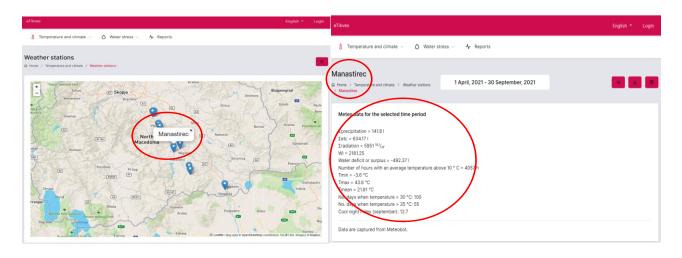


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E-tikves platform - Temperature and climate measurement - VENULE



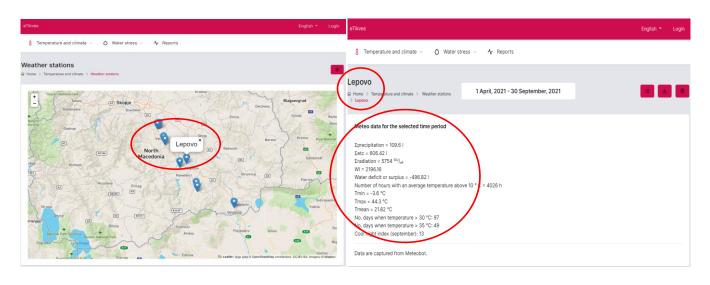
e-tikvesvineyards platform - Temperature and climate - MANASTIREC



E-tikves platform - Temperature and climate measurement - MANASTIREC



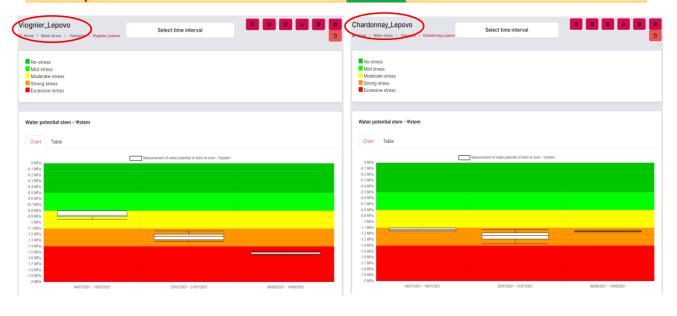
e-tikvesvineyards platform - Temperature and climate - LEPOVO

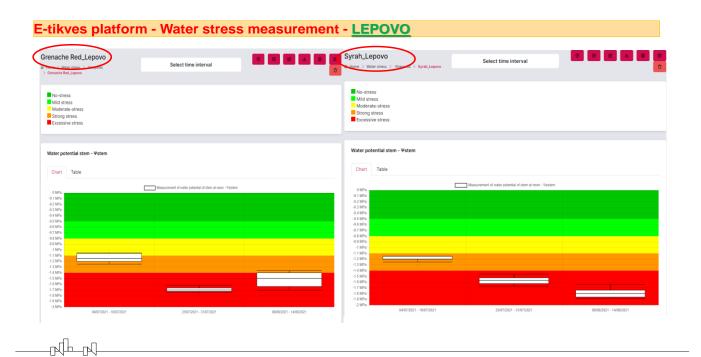






E-tikves platform - Water stress measurement - LEPOVO



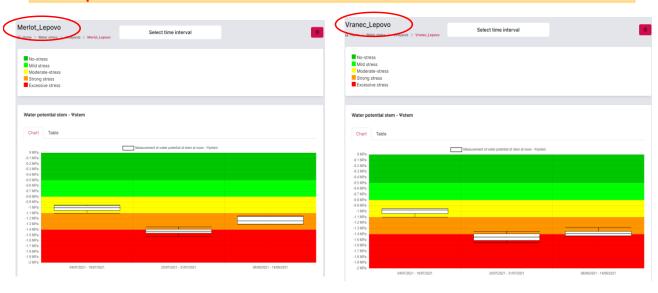


Pinot Noir_Lepovo 2 more 3 More than 3 More 1 Manual Service Water potential stem - Vistem Churt Table Water potential stem - Vistem Unut Table Data - Vistem - Vis

E-tikves platform - Water stress measurement - LEPOVO

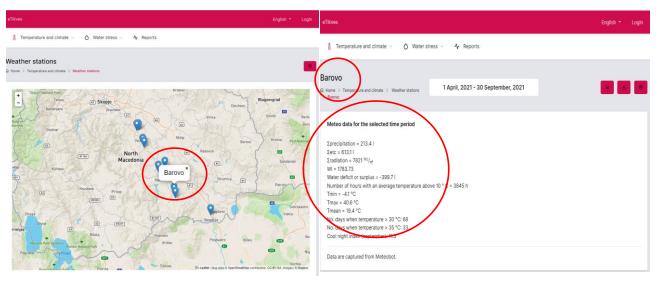


E-tikves platform - Water stress measurement - LEPOVO



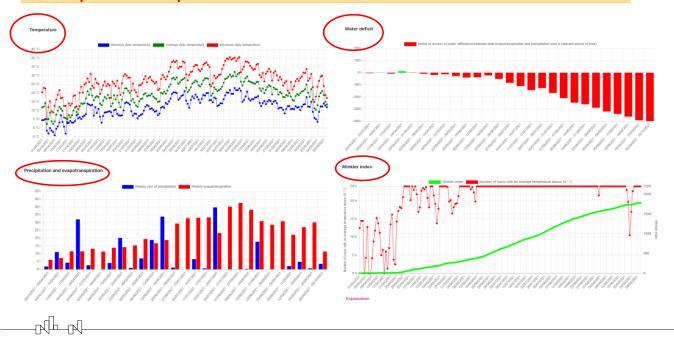
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e-tikvesvineyards platform – Temperature and climate - BAROVO

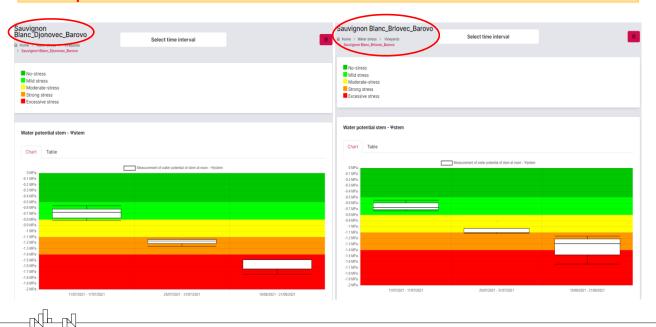


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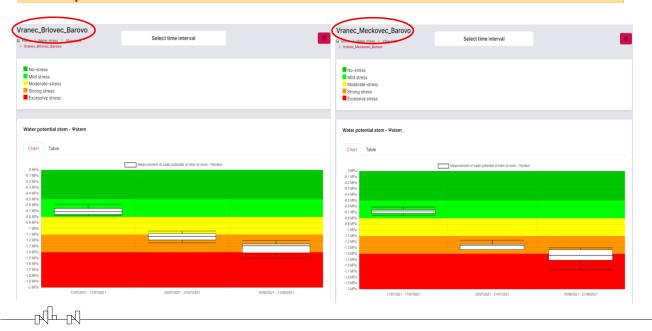
E-tikves platform - Temperature and climate measurement - BAROVO



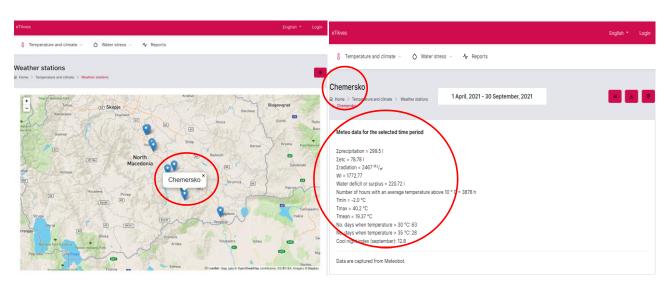
E-tikves platform - Water stress measurement - BAROVO



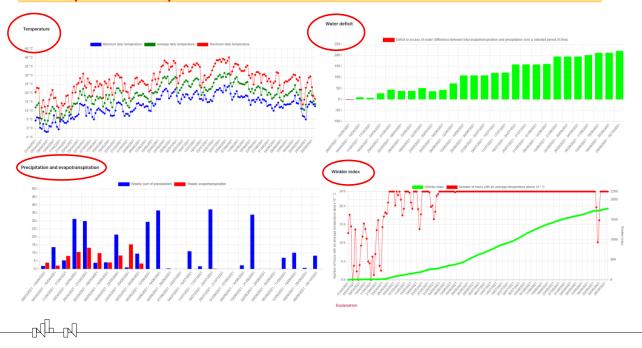
E-tikves platform - Water stress measurement - BAROVO



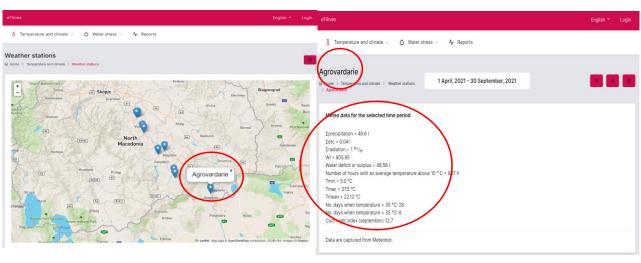
e-tikvesvineyards platform - Temperature and climate - CHEMERSKO



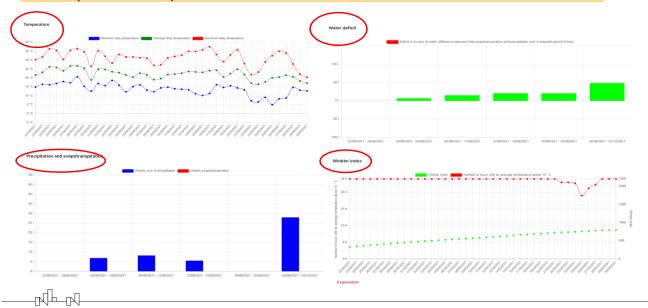
E-tikves platform - Temperature and climate measurement - CHEMERSKO



e-tikvesvineyards platform - Temperature and climate - AGROVARDARIE



E-tikves platform - Temperature and climate measurement - AGROVARDARIE



Dyostem instrument

- for better understanding of grape maturation and determining right harvest date for deisred wine style.



