



## Applied Viticulture Research in Switzerland

### Agroscope

The Swiss Confederation supports the agricultural sector through the development and transmission of knowledge. The Center of Excellence for Agriculture Research (Agroscope) carries out this mandate by executing three main tasks within the motto “good food, healthy environment”:

- 1: Conduct research and development along each step of the value chain for the agriculture and food sectors.
- 2: Contribute to crafting appropriate enforcement tasks and enforcement tools for national legislation.
- 3: Provide scientific examination, recommendations and support for agricultural policy.

These tasks are highlighted within our working program which focuses on the principles of agroecology (ecological, economic and social sustainability) across the entire agriculture and food system. Co-creation with stakeholders in the value chain is also of high importance in order to ensure application, usability and transferability of results.

### Viticulture & Enology at Agroscope

Although Viticulture in Switzerland is relatively small in terms of production area, it plays a large role in the Swiss economy. Agroscope has two viticulture research groups in the French-speaking and German-speaking regions of Switzerland. These regions are defined by linguistic, but also legislative and climatic differences. Additionally, there are research groups focused on enology, wine analytics and plant protection in viticulture. Extension services, supported by cantonal (similar to state) governments, are also present in regions where research groups do not exist.

### Viticulture in Wädenswil

Originally, the viticulture group in Wädenswil (German-speaking Switzerland) was an extension service due to this region's lower production area. Today we are a research group that has a strong presence in the regional viticulture/wine sector. Our group has projects focused on plant protection, soil quality, agronomical and enological grape variety testing, wine production and consumer perception of wines. Our results are transferred directly to cantonal viticulture consultants, government agencies and producers through presentations, reports, technical articles in regional magazines, as well as peer-reviewed journals. Our topics include the following:

**Testing of new varieties and clones:** Preservation of clonal diversity of traditional autochthonous grape varieties in Switzerland (ex. Räuschling). Selection of resilient clones and supporting poly-clonal strategies to take into account the problems of climate change. Agronomic and oenological testing of fungus-resistant varieties (Swiss and European) with multiple resistance genes, which allow a major reduction of plant protection agents.

**Cultivation systems:** Developing decision-making aids for nitrogen fertilization and its application (including foliar fertilization) to optimize nitrogen content in grape must. Investigating the importance of mycorrhizal fungi in the soil to improve soil quality, vine growth and grape quality.

**Plant protection:** Maintaining Agrometeo, a platform that provides prognosis models for the most important grape vine diseases as well as monitoring pests and providing up-to-date phenology and grape maturation values. Innovative projects include new epidemiological models and weather stations with integrated spore sensors using artificial intelligence (AI). Additionally, testing integrated, practical crop protection strategies in viticulture (conventional strategies with reduced risk, biological strategies with



reduced copper levels, and new alternative products, including biomolecules from various biological sources). Evaluation, detection, and monitoring of grape yellowing diseases. Evaluation of the susceptibility of the main Swiss grapevine cultivars to golden yellowing (quarantine phytoplasma).

Enology: Developing oenological practices best suited to the individual expression resistant grape varieties. Coordination and analysis of consumer tastings to better understand consumer perception of new and/or unfamiliar wines as well as providing information to better support the wine industry to market new wines.

### Presentations of Potential Interest

- The current state of robust (interspecific) grape varieties in Switzerland
- Is a low pesticide residue plant protection strategy part of the future?
- Viticulture in Switzerland: An overview of production, research and innovation
- Plant protection in viticulture using the risk prognosis model Agrometeo

### Agroscope Website

[Viticulture \(agroscope.admin.ch\)](http://agroscope.admin.ch)

The website is mainly used in the national languages - German, French and Italian. While there is the option to select English, information in English is a bit limited. Translations are available online and are substantially accurate.