

Research for the Agriculture and Food Sector



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Education and Research EAER
Agroscope





Agroscope
good food, healthy environment

Dear Readers,

Agroscope carries out research for good food and a healthy environment. This means that Agroscope is ubiquitous in our everyday lives, in our high-quality foods and our varied agricultural landscape.

Agroscope's applied research benefits numerous other target groups in addition to the general public. Agricultural practitioners make use of newly acquired knowledge and innovative technologies. Actors in the food industry have a reliable point of contact in their field. Scientists set store by Agroscope with its networks and modern research infrastructure for cooperative ventures. Policy decision-making bodies rely on our studies and recommendations.

With its applied basic research, Agroscope generates directly useable knowledge. Thanks to its close contact with a variety of sectors, for instance through its framework of forums, Agroscope has its finger on the pulse of practitioners. Agroscope also undertakes inspection and enforcement tasks relating to agricultural legislation.

Agroscope is the right point of contact for issues arising in the agriculture and food sector, because we are already dealing with tomorrow's topics today.

Michael Gysi, Head of Agroscope



Plant Production
Livestock
Food
Sustainability

Researching – from Seed to Harvest



In plant production, it's not only high yields that are important. The aim is safe, robust, high-quality products containing minimal contaminants. Suitable plant varieties and cultivation techniques as well as effective plant protection are the foundation for this. Constant changes in the environment and society pose real challenges for research.

Needs-based plant nutrition and cleverly chosen cultivation methods and varieties as well as sustainable plant-protection strategies are success factors enabling site-appropriate, resource-saving cultivation under Swiss conditions. To this end, Agroscope runs a variety of plant-breeding programmes, e.g. from field and forage-crop production all the way to vegetable and fruit production and viticulture. The series of trials on various crops such as maize, oilseed rape or forage grasses and legumes serve as a basis for the Agroscope Lists of Recom-

mended Varieties. Agroscope also tests resources and gives recommendations for plant protection.

A particular challenge, for example, is the plant disease fireblight, triggered by the *Erwinia amylovora* bacterium. Agroscope's research covers genomics, diagnostics and strategies for real solutions. The latter range from plant breeding, treatment with sprays, and the choice of cultivation methods, all the way through to the biological control of pathogens. The 'Ladina' apple, for instance, was bred by

Agroscope as a fire-blight tolerant variety.

The aim is to continue to obtain high yields and high-quality products in future, even in altered growing conditions triggered e.g. by climate change. Here, the breeding of drought-resistant crop varieties and water-saving cultivation methods are key, as are strategies for combating new pathogens. In plant production, the future objective is to produce more with fewer resources.



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Researching – from the Animal to the Raw Product



Over two-thirds of the useful agricultural area in Switzerland consists of grassland, which is why ruminant husbandry is an important pillar of Swiss agriculture. Agroscope provides farmers with the foundations of good forage production and animal nutrition, and is also responsible for official inspection of animal feed. Agroscope focuses on farm animals such as ruminants, pigs and horses, as well as bees.

Thanks to the high-quality grassland forage produced in Switzerland, milk and meat can be produced in an ecologically efficient manner with minimal use of concentrates. Agroscope supports the sustainable use of meadows and pastures as well as the development of sustainable grassland and alpine-farming systems, and develops principles for feeding livestock. Measures are sought which combat the climate-impacting methane emissions of ruminants without negatively affecting competitiveness. Meat quality, feed and animal



health are all important topics in pig research.

Agroscope runs the Swiss National Stud Farm in Avenches (canton of Vaud) in support of the horse sector on behalf of the Federal Government. Projects for the benefit of the Franches-Montagnes horse – the only remaining horse breed originating in Switzerland – are accorded high importance. Here, the preservation of genetic diversity and enhanced marketability are paramount.



Agroscope has concentrated its bee research activities at the Centre for Bee Research, which cooperates closely with the University of Bern and the Bee Health Service of apisuisse, the umbrella organisation of the Swiss beekeepers' associations. Well networked internationally, Agroscope uses its own bee colonies to deal on the one hand with issues of bee health, e.g. the occurrence of new parasites, and on the other with bee products such as honey, wax and pollen, as well as with breeding issues.



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Researching – from Raw Material to Food



Healthy, safe, enjoyable and competitive – the aim is to produce high-quality foods from the raw materials of Swiss agriculture. Agroscope research results on foods are of key importance for the processing and retail sectors as well as for nutrition experts and consumers. Agroscope supports the food sector when new challenges arise.

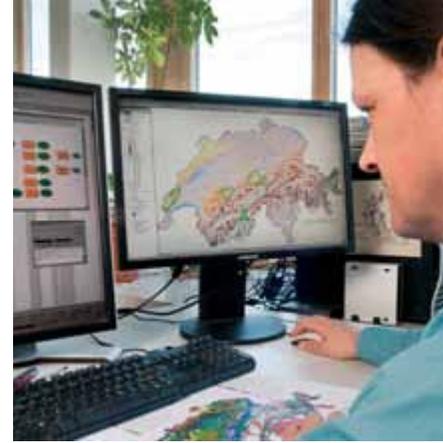
Switzerland is characterised by a wide range of high-quality varieties of cheese. Agroscope also contributes to this great variety – not only by developing and producing fermentation cultures, but also through its research activities on food quality and safety issues. By supporting quality leadership, for instance, Swiss cheese can be sold at a good price, which increases the added-value for the agricultural sector.



Agroscope has a long tradition of developing and producing domestic fermentation cultures. In this way, it makes a substantial contribution to the preservation and nurturing of the natural biodiversity of microorganisms used for the manufacture of fermented foodstuffs, such as cheese, yoghurt, wine, spirits, and meat products.



The increasing globalisation of trade places the highest demands on food safety and quality. Agroscope makes a crucial contribution to ensuring that food produced from the raw materials of Swiss agriculture meets the varying requirements of the different export markets. The shelf life of foods, including that of fruits and vegetables, is another important research area for Agroscope.



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Researching – for a Sustainable Agriculture and Food Sector



Practitioners and policy-makers need a foundation of scientifically supported decision-making in order to further develop the agriculture and food sector. Agroscope develops this foundation with a view to creating sustainable agricultural production systems. It also develops and tests innovative technologies for practitioners.

How sustainable is the production of the Swiss agricultural sector? What measures would make it even more competitive and resource-saving? Agroscope investigates and develops agricultural production systems bearing in mind new technologies as well as economic, environmental and social factors.

The Swiss Farm Accountancy Data Network highlights the economic situation of Swiss farms on an annual basis. These data are included in the SWISSland simulation model which

shows the effects of agricultural policy and the market on agricultural income and structure, as well as future potentials.

Agroscope provides tools and decision-making processes for safeguarding natural resources such as soil, water and biodiversity. The Swiss Soil Monitoring Network (NABO), for example, enables the early detection of soil pollution. The ALL-EMA 'Agricultural Species and Habitats' National Monitoring Programme allows us to develop indicators for measuring changes in

the species and habitat diversity of the agricultural landscape. In addition to this, Agroscope provides answers to socioeconomic questions.

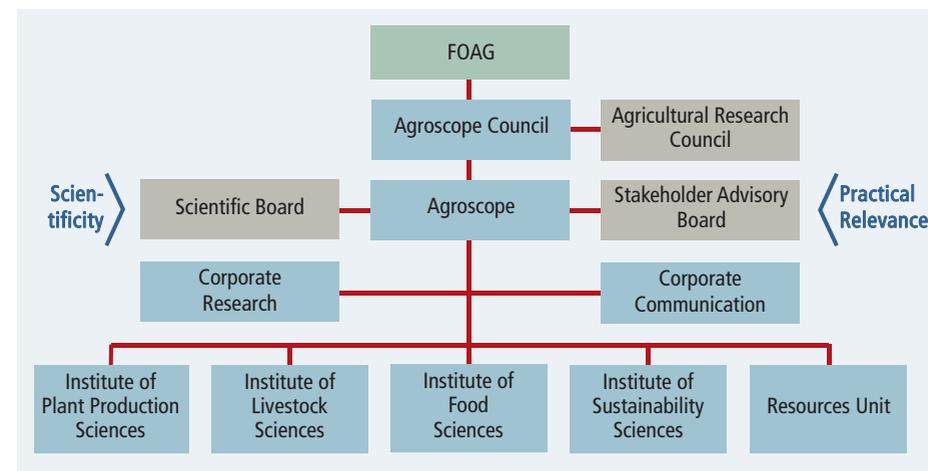
Tomorrow's production systems are meant to meet the various requirements of the market and society and to exhibit a high degree of resilience in the face of changed conditions, for instance owing to climate change. To this end, Agroscope uses its expertise from numerous research topics and cooperates with national and international partner institutions.

Research, Policy Advice, Enforcement and Knowledge Sharing

Agroscope is the Swiss Federal Centre of Excellence for Agricultural Research, and is affiliated with the Swiss Federal Office for Agriculture (FOAG). Agroscope carries out research along the entire value chain. Its aims are a competitive and multifunctional agricultural sector, high-quality food

for a healthy diet, and a healthy environment. Agroscope is distinguished by a combination of research, policy advice, enforcement, knowledge sharing and technology transfer, as well as by a mixture of applied and basic research of practical relevance.

Networked with Science and Practice



The FOAG ensures the strategic orientation of research via the Agroscope Council, which is supported by the Agricultural Research Council. Agroscope is also supported by a

'Scientific Board' with an international membership, as well as a 'Stakeholder Board' with members from official agencies, industry associations and the policy sector.

Masthead:

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Agroscope makes a vital contribution to a sustainable agriculture and food sector as well as to a healthy environment, thereby contributing to an improved quality of life.

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