

# The Swiss Pursuit of Environmental Sustainability in Farming

La quête d'une agriculture durable en Suisse

Das Schweizer Bestreben nach ökologischer Nachhaltigkeit in der Landwirtschaft

Anina Gilgen and Stefan Mann

## The Swiss approach to multifunctional agriculture

Since the concept of multifunctionality entered the agricultural debate in the late 20<sup>th</sup> century, Switzerland has always been at the forefront of countries emphasising the need to link food production with the provision of non-market goods like biodiversity and landscapes. Such non-market goods are subsidised by direct payments, as Switzerland has one of the highest producer support estimates in the world: 49 per cent of gross farm receipts come from public sources, with most direct payments being classified as minimally or not distorting to trade at the World Trade Organisation (WTO).

All farms receiving direct payments must meet certain environmental standards, such as a regulated crop rotation. In addition, some of the direct payments are promoting environmental protection, namely the biodiversity payments and part of the production system payments, which include contributions to animal welfare as well as payments for a wide range of environmental issues. Most of these contributions are paid out for the implementation of specific measures, such as reduced use of pesticides, soil-conserving cultivation, or promotion of organic farming. The introduction in Switzerland of payments for

organic farming, one of the first countries in Europe to do so, coincided with the exceptionally high demand for organic products (12 per cent of retail sales in 2024). This resulted in 18 per cent of the utilised agricultural area in Switzerland being dedicated to organic agriculture. For comparison, only 9 per cent of agricultural land in the EU was managed under organic farming in 2020 (an area-weighted average across all EU Member States).

“ Les systèmes de paiement novateurs sont confrontés à l'incertitude dans un contexte de prudence de la Suisse en matière de réforme de la politique agricole. ”

In 2008, Switzerland reviewed all legal foundations to compile a list of environmental goals in agriculture. However, eight years after the goals were published, the government conceded that only 7 of the 30 measurable objectives had been attained (Federal Office for the Environment, 2016), and the

situation has hardly improved since 2016. This is despite Switzerland's leading efforts to incorporate environmental aspects into agricultural policy.

Results-based payment schemes have been proposed to help achieve environmental policy goals in agriculture (e.g. Herzon *et al.*, 2018). In these payment schemes, farms are not paid for taking action, but for delivering a pre-defined environmental outcome. It is suggested that results-based payment schemes lead to greater flexibility, less regulation and more targeted actions (Matzdorf and Lorenz, 2010). The disadvantages include the higher risk for farmers and the extensive data collection required for monitoring purposes (Matzdorf and Lorenz, 2010). Switzerland was among the first countries to introduce a results-based payment scheme for biodiversity in 2001, which was subsequently developed and extended.

This article sheds light on the successes, but also on the societal struggle and failures of attaining a situation that could be sustained for future generations. We review innovative policies in the realm of biodiversity preservation to illustrate achievements and present pilot projects aiming to further improve the direct payment system. To show the

limits of environmental progress and the reasons for it, we will present insights into recent political developments and the effects of the country's pure democracy.

### Existing innovative approaches

A considerable part of Switzerland's agri-environmental policy follows routes that many other countries have also taken. This includes programmes where farmers are paid to fertilise less (Richter *et al.*, 2024) or to refrain from using certain pesticides (Rödiger *et al.*, 2024). With regard to biodiversity, more innovative instruments have been developed. So-called ecological focus areas are subsidised (e.g. extensive grassland), which must be managed in a specific way (e.g. no pesticides) to receive a basic direct payment. A results-based payment scheme has been built on top of these basic contributions. For example, if an extensive grassland contains at least six different plants from a canton-specific list of rare flora, the payment for biodiversity increases from 780 Fr./ha (basic payment) by a further 1,920 Fr./ha (results-based payment) in the lowlands.

Other programmes are more individual and tailored to the protection of certain species. This applies specifically to so-called network contributions of 1,000 Fr./

ha, which can be paid additionally on ecological focus areas within the respective network. Farmers from one or several municipalities form a group to protect a certain species with the assistance of the local administration and an environmental consultant. The developed concept has then to be approved by the canton, which finances the measure together with the Federal Office for Agriculture. A recent analysis has shown that the areas under such network projects had a significantly higher degree of biodiversity compared to the rest of the land, including other ecological focus areas (Meier *et al.*, 2024). It seems that individual and site-adapted measures are preferable to a 'one size fits all' approach.

„Angesichts der zurückhaltenden Haltung der Schweiz gegenüber einer Reform der Agrarpolitik stehen innovative Zahlungssysteme vor Unsicherheiten.“

Another example of innovative elements is landscape quality

payments, albeit more targeted towards aesthetics than agriculture's environmental footprint. By design, landscape quality projects are similar to network projects and comprise several farms and a coordinator that develop a concept for the cantonal administration, which has to approve the project. Landscape quality projects opt for attractive elements, such as arable fields in mountain areas or high-stem fruit trees. Since there is an underlying list of admissible elements, landscape quality payments are slightly more standardised than network payments. Recently, it could be shown that certain elements (such as intensive grassland or stone structures) do indeed improve the perception of the beauty of landscapes in the affected areas (Mann *et al.*, 2023).

### Conceptual approaches and pilot projects

The Federal Office for Agriculture aims at making the current direct payment system more results-based. This intends to simplify the complex direct payment system and make it more targeted. As a consequence, several innovative agricultural policy approaches in research and practice have been initiated.

The 'indicator-based direct payments' project examined what



Flower strips as an example of a subsidised ecological focus area that promotes biodiversity © Gabriela Brändle, Agroscope.





Arable land in Burtigny (VD), located in the valley region of Switzerland. © Gabriela Brändle, Agroscope.

such a direct payment system could look like and what the advantages and disadvantages would be (Gilgen *et al.*, 2023). When designing this conceptual system, it became evident that there are many requirements for results-based payments, which cannot all be met simultaneously. Such requirements include a low workload for farmers, flexibility in the choice of agricultural measures, responsiveness to agricultural management, accurate results, and verifiable data. For example, a results-based payment based on the indicator ‘measured milk urea concentration’ would have the following trade-off: this indicator would involve little additional work for farmers, because milk urea is already measured by milk testing centres and breeding associations. However, it is not trivial for farmers to influence the milk urea content of dairy cows, because the exact nutrient composition of the grass, which varies seasonally, plays an important role.

The project therefore designed three variants of results-based direct environmental payments, which differ in their complexity (Roesch *et al.*, 2023). The simplest variant required the least data collection effort, while the most detailed variant was able to quantify environmental impacts more accurately. Furthermore, it was found that the design of the results-based contributions should depend on the environmental problem in question. For example, payments for soil

quality could be linked to measured/observed values (e.g. carbon content of soil samples or soil cover from satellite data), while greenhouse gas emissions cannot be measured on entire farms and would therefore have to be modelled. Another finding of the project was that a change in the direct payment system alone – no matter of which design – would hardly lead to strong production system changes on Swiss farms (e.g. reduction in livestock), even though such changes are necessary to achieve sufficient reductions in environmental pollution. Such a change would require further measures not considered in this project, in particular changes in consumption behaviour.

“ Innovative payment schemes face uncertainty amid Switzerland’s cautious approach to agricultural policy reform. ”

In the context of so-called **resource projects**, the Federal Office for Agriculture supports efforts to use resources sustainably within a regional pilot project. In these projects, measures are implemented on individual farms that may later be incorporated into the direct payment

system. Some of these resource projects are currently testing results-based direct payments, as the following four examples show:

- **Target-oriented biodiversity promotion (2020–2026):** In this project, biodiversity is promoted at the farm level in a targeted and site-specific manner. In contrast to the current direct payment system, biodiversity contributions account for the location of the ecological focus area, the quality of the area, and the type of habitat in a more differentiated manner. The participating farmers are free in their choice of measures to achieve the goals, whereas there are strong restrictions in the current system.
- **KlimaStar Milk (2022–2027):** In this resource project, a results-based premium model for greenhouse gas emissions and feed-food competition is tested on dairy farms. To this end, farm-specific reduction targets are set. Farms that have high emissions compared to other farms have stricter reduction targets and vice versa. Financial compensation per kilogram of milk produced is given if the targets are met.
- **Résulterre (2024–2029):** This project aims to enhance the organic carbon content in arable soils. The project has a results-based remuneration approach, based on a scale of three levels (zero, average, optimum). Key





**Braun cattle on the Praditschöl Alp, located in Switzerland's summer grazing area, which is only farmed during the warmer months**  
© Gabriela Brändle, Agroscope

measures such as the evolution of soil organic matter or the use of farm fertilisers are monitored. Based on the observed performance, participating farmers will be remunerated accordingly, thus providing a clear incentive for the adoption and maintenance of sustainable agricultural practices.

- **Agroecology (2024–2029):** While the resource programmes described above focus on one or two environmental aspects, the Agroecology resource project aims to improve farms holistically. The project has social, economic and environmental objectives. However, the results-based payments only relate to the environmental topics, as farms should be intrinsically motivated to improve both their economic (e.g. income) and social (e.g. workload) indicators. Results-based payments depend on the following performances: GHG emissions, pesticide risk, biodiversity impact, nitrogen balance (all modelled/calculated), and standardised visual soil assessments. Both the temporal development of the farm as well as the comparison with other farms are considered. Farmers are free to choose the measures they implement.

## The political process

It should be kept in mind that the greening of agriculture is not

necessarily a priority for the whole Swiss population. Switzerland's pure democracy is among the most reliable proofs for this claim: in 1997, 77.6 per cent of the population still voted in favour of a proposal on a sustainable, market-oriented agriculture in Switzerland that supports food security, environmental protection, rural landscapes and family farms, with direct payments tied to ecological performance. Since then, the proportions have shifted. Over the last five years, four initiatives to make farming more environmentally friendly were brought to the ballot by an initiative with at least 100,000 signatures. Yet the initiatives were rejected:

- According to the '[drinking water initiative](#)', farmers would only be eligible for the significant amount of direct payments if they did not use any synthetic pesticides or external feed. Model calculations (Schmidt *et al.*, 2019) suggested that most farms would change their production system and that structural change would increase moderately, i.e. the number of farms would decrease more quickly than with the current system. However, 60.7 per cent of voters decided against this change in 2021.
- The initiative on [mass animal production](#) suggested not only stricter upper limits for the number of farm animals per farm, but also animal welfare standards

that should be at least as high as for organic agriculture (e.g. more space per animal in the barn). The initiators also suggested that only animal products would be imported that matched domestic standards, even though such provisions might have raised WTO queries. In 2022, 62.7 per cent of the electorate rejected the initiative.

- The goal of the [biodiversity initiative](#) was to increase the areas under protection as well as the budget spent on the protection of biodiversity. Furthermore, the initiative sought to protect nature, landscapes and architectural heritage even outside the protected areas. The biodiversity initiative did not address the agricultural sector alone, but would have had a considerable impact on it. In 2024, the biodiversity initiative was declined by 63.0 per cent of the electorate.
- The 'Young Greens' in Switzerland submitted the [initiative for environmental responsibility](#), suggesting a switch within ten years to a system in which planetary boundaries are strictly respected. While this was not a merely agricultural initiative, both proponents and opponents emphasised the impact for the Swiss food system should the initiative be accepted. In 2025, 69.8 per cent of voters decided that this would go too far.

The Swiss Farmers' Association opposed all these initiatives. It has considerable political influence in Switzerland, with 19 per cent of parliamentarians being farmers themselves or holding positions in agricultural organisations. With this background, it should not come as a surprise that neither the administration nor the parliament itself have recently achieved any breakthrough in tackling the environmental challenges facing the farming sector. For example, in 2024 the Swiss parliament revoked the initially approved measure of at least 3.5 per cent of ecological focus areas in arable land. Some very gradual steps like a slight reduction of admissible nitrogen applications or the ban of single pesticides passed the administration, but certainly have not enabled any paradigm change.

## Summary and conclusions

Our era of 'populist revolt' (Goodheart, 2017) shows its impact on Swiss agricultural policy, as reflected by a growing divide between well-educated, globally oriented people and those who are more rooted in a particular region or community and feel threatened by globalisation and cultural mixing. On the one hand, scientists, part of the administration, and some associations such as Bio-Suisse see a need to transform the food sector and they put a lot of effort into innovative approaches to do so. As part of the necessary political innovations, results-based payment schemes have an important role to play. They offer an opportunity to achieve agri-environmental goals that are more targeted and that give more flexibility to farmers.

On the other hand, not only the Swiss Farmers' Association, but also the majority of the Swiss population resist far-reaching changes in agricultural policies. One issue is certainly bureaucratic overload, which is a hot topic in Swiss agricultural policy. For the calculation of results-based payments, for example, standardised and often extensive data collection is necessary. In addition, higher food prices and the limitation of entrepreneurial freedoms are important arguments leading to a very low speed of change and a preservation of the status quo in the Swiss farming sector.

## Acknowledgement

Open access publishing facilitated by Agroscope, as part of the Wiley - Agroscope agreement via the Consortium of Swiss Academic Libraries.

## Further Reading


- Federal Office for the Environment and Federal Office for Agriculture (2016). Umweltziele Landwirtschaft – Statusbericht 2016 [Environmental objectives of agriculture – status report 2016]. *Bern: Federal Office of the Environment, Umwelt-Wissen Nr. 1633*: 114 p.
- Gilgen, A., T. Drobnik, S. Mann, C. M. Flury, G. Mack, C. Ritzel, A. Roesch and G. Gaillard (2023). Can agricultural policy achieve environmental goals through an indicator-based direct payment system? *Q Open*, **3**(3): 1–26. Available online at: <https://doi.org/10.1093/qopen/qoac034>
- Goodheart, D. (2017). *The Road to Somewhere: The Populist Revolt and the Future of Politics*. Oxford: Oxford University Press.
- Herzon, I., T. Birge, B. Allen, A. Povellato, F. Vanni, K. Hart, G. Radley, G. Tucker, C. Keenleyside, R. Oppermann, E. Underwood, X. Poux, G. Beaufoy and J. Pražan (2018). Time to look for evidence: Results-based approach to biodiversity conservation on farmland in Europe. *Land Use Policy*, **71**: 347–354. Available online at: <https://doi.org/10.1016/j.landusepol.2017.12.011>.
- Mann, S., M. Hunziker, F. Wartmann, L. Torregroza, F. Kienast and B. Schüpbach (2023). How effective are landscape quality policies? The relation between agricultural landscape subsidies and public perception in Switzerland. *Journal of Policy Modelling*, **45**(2): 251–265. Available online at: <https://doi.org/10.1016/j.jpolmod.2023.03.007>
- Matzdorf, B. and J. Lorenz (2010). How cost-effective are result-oriented agri-environmental measures? An empirical analysis in Germany. *Land Use Policy*, **27**(2): 535–544. Available online at: <https://doi.org/10.1016/j.landusepol.2009.07.011>.
- Meier, E., G. Lüscher, F. Herzog and E. Knop (2024). Collaborative approaches at the landscape scale increase the benefits of agri-environmental measures for farmland biodiversity. *Agriculture, Ecosystems & Environment*, **367**: 108948. Available online at: <https://doi.org/10.1016/j.agee.2024.108948>
- Richter, F.J., M. Suter, A. Lüscher, N. Buchmann, N. El Benni, R. Feola Conz, M. Hartmann, P. Jan and V.H. Klaus (2024). Effects of management practices on the ecosystem-service multifunctionality of temperate grasslands. *Nature Communications*, **15**: 3829. Available online at: <https://doi.org/10.1038/s41467-024-48049-y>
- Rödiger, M., A. Zorn, M. Mielewicz, K. Heitkampfer, A. Roesch and N. El Benni (2024). How does pesticide reduction affect labour time and profitability? A crop production case study. *Agricultural Systems*, **220**: 104101. Available online at: <https://doi.org/10.1016/j.agry.2024.104101>
- Roesch, A., Flury, C., Nemecek, T., Mann, S., Ritzel, C. and Gilgen, A. (2023). Indicator-based agri-environmental direct payments: Assessment of three systems of different complexity levels. *Ecological Indicators*, **147**: 109886
- Schmidt, A., G. Mack, A. Möhring, S. Mann and N. El Benni (2019). Stricter cross-compliance standards in Switzerland: Economic and environmental impacts at farm- and sector-level. *Agricultural Systems*, **176**: 102664. Available online at: <https://doi.org/10.1016/j.agry.2019.102664>

Anina Gilgen, Researcher and Team Leader, Agri-Environmental Monitoring, Agroscope, Reckenholz, Switzerland.  
**Email: [anina.gilgen@agroscope.admin.ch](mailto:anina.gilgen@agroscope.admin.ch)**


Stefan Mann, Researcher in Socio-economics Group, Agroscope, Tänikon, Switzerland.  
**Email: [stefan.mann@agroscope.admin.ch](mailto:stefan.mann@agroscope.admin.ch)**

# Summary


## The Swiss Pursuit of Environmental Sustainability in Farming

 Switzerland introduced results-based payment schemes for farmers at an early stage, specifically in the area of biodiversity. When an ecological focus area (e.g. extensive meadow) reaches a certain level of plant species diversity, it receives more monetary reimbursements. However, most subsidies in Switzerland are still paid out based on specific measures. This paper provides an overview of innovative elements of Swiss agricultural policy that contain, in addition to results-based biodiversity payments, payments for ecological networks and for landscape amenities. Pilot projects in which various results-based payments are currently being tested are also presented. However, a fundamental change to the Swiss direct payment system and agricultural policy in general seems difficult to achieve. For example, in recent years Swiss voters have rejected several political initiatives that aimed to achieve a more environmentally friendly agricultural policy.

## La quête d'une agriculture durable en Suisse

 La Suisse a introduit très tôt des systèmes de paiement au résultat pour les agriculteurs, notamment dans le domaine de la biodiversité. Lorsqu'une zone écologique prioritaire (par exemple, une prairie extensive) atteint un certain niveau de diversité d'espèces végétales, elle reçoit des compensations financières plus importantes. Cependant, la plupart des subventions en Suisse sont encore versées dans le cadre de mesures gouvernementales spécifiques. Cet article présente un aperçu des éléments novateurs de la politique agricole suisse qui comprennent, outre les paiements au résultat pour la biodiversité, des paiements pour les réseaux écologiques et pour les aménités paysagères. Des projets pilotes dans lesquels différents paiements au résultat sont actuellement testés sont également présentés. Cependant, une réforme en profondeur du système suisse de paiements directs et de la politique agricole en général semble difficile à mettre en œuvre. Ces dernières années par exemple, les électeurs suisses ont rejeté plusieurs initiatives publiques visant à instaurer une politique agricole plus respectueuse de l'environnement.

## Das Schweizer Bestreben nach ökologischer Nachhaltigkeit in der Landwirtschaft

 Die Schweiz hat schon früh ergebnisorientierte Zahlungen in der Landwirtschaft eingeführt, insbesondere im Bereich der Biodiversität. Wenn ein ökologischer Schwerpunktbereich (z. B. eine extensive Wiese) eine bestimmte Pflanzenartenvielfalt erreicht, erhält der Betrieb eine höhere finanzielle Förderung. Die meisten Subventionen in der Schweiz werden jedoch nach wie vor auf der Grundlage spezifischer Maßnahmen ausbezahlt. Dieser Beitrag gibt einen Überblick über innovative Elemente der Schweizer Agrarpolitik, die neben ergebnisorientierten Zahlungen für Biodiversität auch Zahlungen für ökologische Netzwerke und für Landschaftsqualitäten umfassen. Außerdem werden Pilotprojekte vorgestellt, in denen derzeit verschiedene ergebnisorientierte Zahlungen getestet werden. Eine grundlegende Änderung des Schweizer Direktzahlungssystems und der Agrarpolitik im Allgemeinen scheint jedoch schwer zu erreichen zu sein. So haben die Schweizer in den letzten Jahren mehrere politische Initiativen abgelehnt, die auf eine umweltfreundlichere Agrarpolitik abzielten.

# summary