



MOVING
MOUNTAIN VALORISATION THROUGH
INTERCONNECTEDNESS AND GREEN GROWTH

Policy Brief

SWISS ALPS | Mountain grain



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Swiss Alps: Mountain grain

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Summary

The mountain grain value chain in the canton of Grisons in the Swiss Alps is characterised by difficult growing conditions and innovative producers. Here we present the challenges of grain cultivation on steep slopes and how strengthening actor networks along the value chain could potentially improve resilience to climate change and emigration.

The main issues policy will have to address are related to infrastructure investments and facilitation of niche opportunities for innovative products.

Know more about the Swiss Alps Reference Region, its selected value chain and the regional multi-actor platform (MAP), [here](#).

Key policy messages

- Provide opportunities for niche products to enter the market
- Networks provide opportunities for development and foster innovation
- Infrastructure is lacking despite high demand in the value chain and from the market

1. The Mountain Reference Region (MRR)

The Grisons Alps – ranging from around 200 to over 4 000 m above sea level – form the entire south-eastern part of the Swiss Alps. They have several borders with other cantons and countries, such as Val Poschiavo on the Italian border and Prättigau on the Austrian border, and they provide an important traffic route connecting southern Germany with Northern Italy. Grisons is both the biggest canton of Switzerland and the one with the lowest population density, with around 28 people per km². The most important economic sectors are energy production (mainly hydropower), tourism, secondary industries, and agriculture (BFS, 2021). The Swiss federal government's New Regional Policy (NRP) identifies 15 "low-potential areas" in Grisons, i.e. these areas with a negative employment and value-generating development, an unfavourable development of the age structure (e.g. emigration), a reduction of basic services (e.g. schools, shops, medical infrastructure), and unfavourable financial ratios at the municipal level (see Cavelti and Kopainsky, 2006).

For the permanent settlement of some municipalities, mountain farming is essential. However, farming in the Grisons Alps is demanding. In the higher regions, growing seasons are up to two



months shorter than in the valleys, and yields are comparatively low. Poor accessibility is a challenge, and some farmers cultivate land with slopes of 50 degrees or more, which requires special equipment and infrastructure as well as a lot of manual labour. Nevertheless, agriculture has a long tradition in the Grisons Alps and plays a major role in forming the typical Swiss landscape. Around 5% of the canton's population is involved in agriculture and forestry, which allows for the cultivation of grapes and chestnuts in the south, alpine farming in the highest mountains (mostly ruminants), and the cultivation of all kinds of arable crops in the northern Rhine valley (BFS, 2021).

In Switzerland there is a complex system of subsidies and direct payments for the agricultural sector, which strongly directs agricultural production. This financial support is linked to a cadastre of 7 agricultural zones, which are classified based on climate, accessibility, and slope. For our Mountain Reference Region (MRR), we will examine specifically the higher mountain zones.

The challenges faced by agricultural producers in mountain areas have led to special support to agriculture in mountain areas from the federal government. This includes higher contributions for the construction of agricultural infrastructure, higher subsidies for keeping animals in difficult terrain and slope contributions. Grisons' farmers receive a higher share of income from subsidies compared to other farmers in Switzerland. In addition, due to the terrain, the land is mainly managed extensively. In fact, Grisons is the canton with the highest number of organic farms in Switzerland, with 65% of farms producing organically (see BFS, 2021).

Agricultural production in the mountain zones is dominated by the ruminants, as large areas of land are only suitable for grass cultivation. However, one-sided business models (like a focus on livestock) are increasingly becoming risky, as climate change (e.g. dry years – by no means a rarity anymore) leads to heavy losses in hay yields.

2. Mountain-grains rediscovered

While animal-based agriculture is the predominant production system, the value chain for grains in the mountain area of Grisons is an example of traditional forms of farming practice at high altitudes, mixed with innovative approaches, such as new production methods and novel marketing.

In mountain areas 2 and 3, grain production declined by almost 70% between 1999 and 2006 (Bardsley and Bardsley, 2014). The reasons are mainly financial, as mountain grains are of high quality, but the labour input is immense and the yield rather meagre. Recently, however, grain cultivation has been rediscovered, mainly thanks to the founding of the "GranAlpin" cooperative, which unites mountain grain farmers and helps Grison's grain stand out from the rest of the market (Schilperoord, 2014).



Grison's mountain grain is grown almost exclusively organically and differs from grain from lower altitudes because of its later ripening time. It is also claimed that the higher position of the sun, and the resulting more intense sun exposure, makes the grain more nutritious and sweeter. Grain cultivation provides additional income to farming families, increases their economic independence and reduces the risk of a one-sided focus on livestock. By using diversified and adapted grain varieties, farmers enable versatile and ecological mountain farming, which ultimately leads to better fertiliser management and more sustainable care of fields and meadows. The main grains grown in the MRR are wheat, spelt, rye, barley, oats, and millet. Also of importance are some pseudo-grains or grain relatives such as buckwheat, maize, and hemp (see Schilperoord, 2017). There are around 90-100 grain farmers in the mountain areas concerned who produce mainly for GranAlpin. As soon as they can harvest their grain, it is transported to GranAlpin's warehouses, the main one located in Landquart in the Rhine Valley. In these warehouses (grain silos) the grain is stored, packed and distributed according to current demand. Some of the grain is then delivered to mills - both in the region and outside the canton - or directly to end producers such as breweries. The mills then produce and package either whole grains, flour, or flakes, which requires a lot of manual labour due to the characteristics of some grain types and the small quantities. In cooperation with local bakeries and dairies, breads and pasta are also produced. The finished products are then delivered to larger distributors (supermarkets) or smaller shops (e.g. on farm) for direct sales.

3. Value chain contribution to sustainability and resilience of the Mountain Reference Region: barriers and opportunities

As described in the first chapter, the challenges facing the MRR are related to both social factors and the natural environment (see also Moschitz and Oehen, 2020). The social factors include declining employment opportunities, low levels of value creation and the development of an uneven age structure, leading to young people migrating to other parts of the country. In addition, there is an unfavourable financial situation, which leads to a decline of basic service infrastructures.

As far as the natural environment is concerned, the challenging topography of the terrain is a major problem. Another problem is climate change, which leads to more frequent dry periods during the growing season and a sharp decline in water availability in general, especially due to the melting of glaciers.

With this in mind, we aim to find ways for the MRR to produce alternative agricultural products that do not rely on livestock farming. The production of niche products or products where the market is not yet saturated can create significant additional value for the MRR. This can be achieved, for example, by promoting innovative products.



Furthermore, it is well known that livestock farming is a major contributor to climate change. While alpine grassland-based livestock production is comparatively "sustainable", the demand for animal products is likely to decrease in the future, reducing the market for mountain farmers. Therefore, a plant-based alternative is desirable. Finally, it has become apparent that GranAlpin products (especially flour) are in great demand, as the trend in Switzerland is increasing towards local, artisanal, and organic products. The mountain grain value chain has great potential to increase value creation in the Grisons Alps, create jobs and thus reduce the emigration of young people. It also offers the chance to positively meet the threat of climate change by choosing the right grain varieties and profiting from warmer temperatures. However, there are several obstacles that we have been able to identify so far to achieving sustainable development of the MRR. The most important obstacles are economic. There is a lack of infrastructure along the growing value chain and investments are not possible either for financial reasons or, more often, because there is a lack of labour, time and knowledge to plan their construction.

One of the most pressing infrastructural problems is the low number of mills in the region. There are three small traditional mills in the MRR, but all are already reaching their production limits. In addition, the larger, more commercialised mills usually do not have the specialised equipment needed for some of the rarer grains, e.g. to produce traditional rolled barley. Another weakness is the low availability of grain collection points. In contrast to the grain farmers in the valleys and hills, the grain farmers in the mountains produce only comparatively small quantities of each variety. These all must be stored separately, so that the number of available silos is quickly exhausted. In addition, the grain collection points are owned by large companies with little interest in storing such small quantities. However, there are also obstacles that are more related to social factors, such as a lack of knowledge - or knowledge that is concentrated in a few people - and a lack of exchange between the relevant actors.

One example highlighting the problem of lack of knowledge is the choice of the right grain variety. In particular, the reintroduction of rye in Grisons has proved difficult because the old varieties have been lost and a more "commercial" variety has proved unsuitable. There have also been problems with the correct sequence of sowing, as much knowledge has been forgotten. Buckwheat has proved particularly successful as an intercrop and is also an important component of traditional Grisons' pasta dishes (Schilperoord, 2017). While the GranAlpin cooperative coordinates and does administrative work, there is still little exchange of knowledge within the network of the mountain grains value chain and especially not with external partners. Finally, there are also natural obstacles. As already mentioned, the persistent dry periods are a problem. But almost more important are the constraints imposed by the nature of the landscape.

Currently, the market demand for GranAlpin grain is greater than what can be produced. Some increase in production is still possible, but a limit will be reached where it is no longer viable to further increase production, as the right terrain is exploited to the maximum and the costs of



labour and machinery become too high. We hope that with our value chain analysis we can show the importance and potential of this value chain for the region to put it on the political agenda and convince bigger players to support these mountain entrepreneurs. We believe that this value chain will also help to show how innovative projects can accelerate development and are often mixed with originally traditional approaches that are reinvented for current demands.

4. Policy relevant considerations

Although the analysis of the policy-relevant considerations is still in its infancy, the following observations can already be made. In Switzerland today, there are already many policy measures regulating agriculture, a large part of which are specifically targeted at mountain agriculture. Moreover, in the Alps in general, and in the Canton of Grisons in particular, there are several regional development projects at different levels, all trying to contribute to a liveable future in the Grisons Alps. With the [MOVING](#) project we have the important opportunity to apply and analyse all these different projects and policy inputs in relation to a single value chain. This gives us the opportunity to make the following suggestions for policy considerations: The challenges facing the land use system, communities and subsequently economic development need to be addressed in a holistic way. How can innovation contribute to accelerating resilience development?

The MRR network of value chain actors, stakeholders, political and economic actors need to be made visible. Attention should be paid to strengthening these linkages. Higher value creation along the value chain can take place in the MRR, this has already been proven. Policymakers need to address the lack of investment opportunities in the necessary infrastructure. Locals, especially young people, need to find attractive employment opportunities within the value chain.

Finally, policy should also focus on linking the mountain grain value chain (or any other mountain value chain) with other local value chains. As demonstrated in this policy brief, the value chain in the Grisons Alps has the potential to play an important role in spearheading sustainable regional development by addressing natural and social challenges and strengthening inter- and intra-regional resilience.

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