

New farming arrangements for resilience

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Abstract: *The aim of this paper is to present new farming arrangements in the Austrian Alps, which lead to resilient farming at a regional scale. Agriculture in the Austrian Alps is characterized by a turn from monofunctionality, focusing solely on food production, towards multifunctionality. Here, mountain farms contribute to the management of alpine landscapes, which are essential for the provision of valuable ecosystem services. As for many farms food production does not protect livelihoods any more, diversification serves as a strategy to increase the income. Synergies between agriculture and tourism could serve as additional sources of income and therefore help to stabilize structural changes in rural areas.*

For this study, the villages Obergurgl and Vent in the Ötztal valley (Tyrol, Austrian Alps) have been designated as investigation areas. Both are originally typical alpine agrarian communities, with a long history of touristic development beginning in the 19th century. Narrative interviews were conducted among local farmers to explore the farm biographies of their holdings from the 1970s to today. The farm biographies revealed that all investigated farms have linkages to tourism to a greater or lesser extent: This relation was more related to the selling of agricultural products in earlier times, whereas nowadays it is mainly based on non-farming activities. The income diversification into touristic activities enables the farms to continuously adapt their farm management, thereby increasing resilience to shocks. Finally, we underline that the processes of farm income diversification are in line with the concept of agroecology.

Keywords: *Alpine farming, farm diversification, agroecology, ecosystem services*

Farming systems in the Alpine area

In the European Alps, more than 30 % of the area is agricultural land, either farmland or natural and semi-natural grassland. Even as the share of the population active in farming decreased sharply in the course of ongoing structural change, new farming arrangements emerged to maintain active, functioning farming systems. Agriculture in those regions also preserves several types of ecosystem and shapes the cultural landscape for recreational and touristic uses. However, especially in European mountain regions, agriculture has turned from monofunctionality, focusing solely on food production, towards multifunctionality, contributing to diverse objectives of farming, e.g. provision of public goods and services, and decentralized settlement (Flury et al., 2013). Mountain farms especially help to sustain multifunctional landscapes by managing Alpine grassland as pastures and hay meadows. These sensitive ecosystems are necessary to maintain valuable ecosystem functions and services (i.e. biodiversity, safety regulation, aesthetic appeal) (Dax, 2008). In addition to food production, its function for leisure, recreation and tourism, as well as other economic activities, has an impact on maintaining vital rural areas. At the same time, the declining importance of food production stimulates, not to say forces, farmers to adapt their farm management and to create new farming arrangements. In doing so they discover new possibilities to diversify farming structures and to generate additional income (Markantoni et al., 2014).

In Austria, nearly 60 % of the farmland is managed by 153,516 family farms¹ (BMFLUW, 2016). They differ from other types of farming, as they focus not just on the economic aspect

¹ Nearly 5% of the farmland is cultivated by group holdings (owned by a group of natural persons) and more than 35% by corporate farms (where the holder is a legal entity) (BMFLUW 2016, p. 59).

of agriculture. “Family farming is not only an occupation in which capital, land and labor are used to produce agricultural output, but also a lifestyle based on and involving beliefs about living and working on the farm” (Calus und van Huylenbroeck, 2010, p. 654). Especially the small-scale farms in mountain areas are family-run, often for generations (FAO, 2013). Given the unfavourable natural conditions, they lack a range of alternative production possibilities, e.g. arable farming or fruit growing (Dax, 2008). Family farms were particularly affected by the decline in the agricultural sector, for several reasons. Technical modernization and breeding progress led to improved productivity but exceeded the financial scope of family farms. However, with globalization and market deregulation, they are competing with large-scale farmers. To maintain the farm, several farmers had to look for off-farm employment and became part-time farmers, which meant a double burden for the farm household. Additionally, with the pluralization of individual’s biographies, there may be no suitable person left to pass the family farm on to (Groier, 2016).^{holl}

Diversification: synergies between agriculture and tourism

Since the beginning of tourism in the Alpine Arc, its appearance contributed significantly to rural livelihoods of a rather poor farming society. The rise of the mass tourism since the 1950s served as a driving force for repopulation and economic revitalization in many Alpine communities (Barker 1982). In some areas, as in the Stubai Valley south of Innsbruck, income options for farmers in tourism stabilize the farming structure, absorb short-term shocks and slow down farm abandonment. Contrary, in Norway (Oppdal), farm work in tourism seems to be more economically attractive than farming and encourages farm decline (Schermer et al., 2016). However, diversification serves as a strategy to increase household income and reduce farm household risk (Bartolini et al., 2014). Although Richard Sharpley and Adrian Vass (2006) argue that literature often refers to diversification into tourism as counteracting socio-economic problems of rural areas, and particularly farming, the OECD (1994) argues that agritourism will not generally save the farming society.

However, we see five options (not exhaustive) to integrate farm activities in the tourism industry. First, farms provide services as ‘holiday on the farm’ for tourists, with a share of 11 % of guest beds in the tourism industry in Austria in 2016 (BMFLUW, 2016). As one third of all farms in Tyrol offer this service, it constitutes an important pillar of agriculture (Meixner, 2006; Meixner et al., 2010). Agritourism does not just include farm-based accommodation, but also farm-based meals², farm-based activities and events, as well as the sale of farm products (Streifeneder, 2016). However, the transition from a resource-based economy to a service-oriented industry demands very different skills (George et al., 2009) and opens up a family farm into an enterprise accessible to the public (Bianchi, 2011). A second source of additional income is off-farm employment in tourism. Winter is a slack period for farming, while winter tourism is the backbone of tourism in Austria, and especially in Tyrol (Meixner et al., 2010). Thus, employment in tourism is synergetic in labour demand. Farmers often work in mountain rescue services, slope grooming and ski lift services, as ski instructors or other tourism-related activities (show dairy,...). Additionally, (mostly female) farmers are involved in gastronomic or lodging activities (Strelli, 2013), whereas (male) farmers act as mountain and hiking guides (Oberwalder, 2004) as well as offering alpine pasture tourism with gastronomic service. A third potential linkage of agriculture and tourism is the provision of high-quality food products for high-end restaurants and tourists within the region. This deepens the relationship between food producer and food consumer in general as well as with potential clients for farmers’ markets or farm-based food festivals (Sidali et al., 2013). Although the supply of local restaurants has been on the agenda of agricultural advisory services for a long time (Schermer, 1989), the results so far are limited. Rationalization in the catering industry and new rising hygiene requirements as well as food safety regulations (Ermann et al., 2018) resulted in a decline of the use of local products in restaurants. A fourth contribution of tourism is the increased awareness of the public of the landscape maintenance function of agriculture and other cultural ecosystem services (like aesthetics) provided by farming (Arriaza et al., 2004). This is a major justification for public transfer payments and may translate into

² Due to legal constraints to a lesser extent in Austria.

direct payment at municipal level, as tourism areas tend to be affluent. Fifth, most of the touristic winter activities, like Alpine or Nordic skiing, take place on farmland, tourist associations or ski lift operators have to pay compensation for the right to use ski slopes or cross-country skiing trails over farmland (Gattermayer, 1992).

With the declining importance of food production, in particular in mountain areas, farm diversification became more important. A multifunctional farming system provides supplementary products and services supporting a diversified and therefore less vulnerable rural economy (López-i-Gelats, 2013). Further, the contribution to landscape maintenance and environmental protection is important for the whole community (Schermer, 2003). Nevertheless, tourism activities are not a panacea for maintaining farming, as much tourism in Austria takes place in agriculturally less favored areas (Gattermayer, 1992). The presented forms of tourism integration into the farming activities all contribute to farm diversification, which is defined here as the “reallocation and recombination of farm resources away from its original farming activity to generate another form of income” (Meraner et al., 2015, p. 769). The resulting symbiosis of agriculture and tourism stabilizes the ongoing structural change in rural areas somewhat (Fleischer and Tchetchik, 2005; Meixner et al., 2010; Schermer et al., 2016) and contributes to the public awareness of the value of farming in general (Tew and Barbieri, 2012).

Diversification from an agroecological perspective

While we refer to diversified income strategies, the agroecological perspective focuses on the ecological meaning of diversification. In this sense, diversified farming systems are defined as systems that comprise “functional biodiversity at multiple spatial and/or temporal scales, through practices developed via traditional and/or agroecological scientific knowledge” (Kremen et al., 2012, p. 2). Here, diversification refers to a functional diversity of the landscape and consequently the provision of bundles of ecosystem services, the benefits provided by ecosystems to human well-being and to society as a whole (Díaz et al., 2006; Ryschawy et al., 2017). However, agroecology refers to the “science of applying ecological concepts and principles to the design and management of sustainable food systems” (Glissman 2007, p. 369). Those food systems denote agro-eco systems (e.g. a farm), including their economic, social, cultural and technological support systems, as well as food distribution and consumption. Thus, agroecology also considers economic and social aspects of farming. Tommy Dalgaard et al. (2003) admit, however, that there are gaps between the perspectives of different disciplines on agroecology. This gap already appears on the scale level, as natural scientists focus on plot or field level, whereas social scientists look at farm or regional level. However, the understanding of agroecology has shifted from an ecological scope towards a broader perception covering social-ecological processes in agriculture (Hatt et al., 2016). This makes social and economic diversification of farming systems an issue of agroecology and crucial for maintaining farming activities (or agricultural practice).

Conceptual frame

The conceptual frame adopted in this study derives from the concept of Ika Darnhofer (2014), which defines farm resilience as “covering buffer capability, adaptive capability and transformative capability” (p. 467). She argues that a farm is resilient when it is able to buffer a disturbance, for example, through financial resources, without any change in the structure. It is further resilient when it is able to adapt to a shock while staying in the same regime, which means new features are added, but the basic system remains. Another expression of farm resilience according to Darnhofer (2014) is the transformative capacity, when, in reaction to a disturbance, a transition is made into a new system. In contrast, for our study we understand a farm as not resilient when it has under-gone the transformation into a completely new system (e.g. from full-time farming into full-time tourism) as a reaction to a disturbing event or a shock. This is because the social system will have fundamentally changed into another system which cannot be seen as a social-ecological system (SES) anymore. Therefore the transformative capacity might help a system to transform into a new system, but, in our perspective and in contrast to Ika Darnhofer (2014), this does not reflect the resilience of a SES (here a farm). However, we consider adaptive strategies in farm management

(e.g. diversification into tourism) as a proactive resilience strategy, not provoked by a shock (DeVerteuil and Golubchikov, 2016).

Several strategies may lead to a resilient farm and thus positively influence rural development. Several approaches have been investigated in the RETHINK project³ and resulted in three groups of resilience strategies: “[1] finding new product niches within the agricultural sphere, [2] creating new ways to structure supply chains, and [3] initiating new activities that may build on farmers' existing assets but go beyond traditional agricultural activities” (Ashkenazy et al., 2017, p. 4). Whereas the first two groups refer to agricultural activities or the sales channels of agricultural produce, the third mentions the diversification into off-farm income. Multiple incomes support farms to sustain their livelihood and to minimize risk. Additional income might be generated on the farm, e.g. agritourism, but also off-farm as any other ordinary job, but often in the nearby tourism industry (see Darnhofer and Strauss, 2015; Sumanee et al., 2017). However, there is no one option to achieve resilience, nor one strategy to enhance resilience for one farm or one community, which could be a panacea that leads to resilience in general. To develop a resilience strategy, the local context as well as the prevailing understandings and values have to be considered (Ashkenazy et al., 2017), and those do change – as society does. Finally, different levels contribute to farm resilience (see Figure 1). At higher level, it is the global context and the region influencing the farm, e.g. through political regulations (e.g. CAP, regional support schemes) or economic restrictions (e.g. financial crisis). The dynamics among the family members as well as their activities on the farm, such as food production, agritourism, forestry, affect the farm resilience at a lower level.

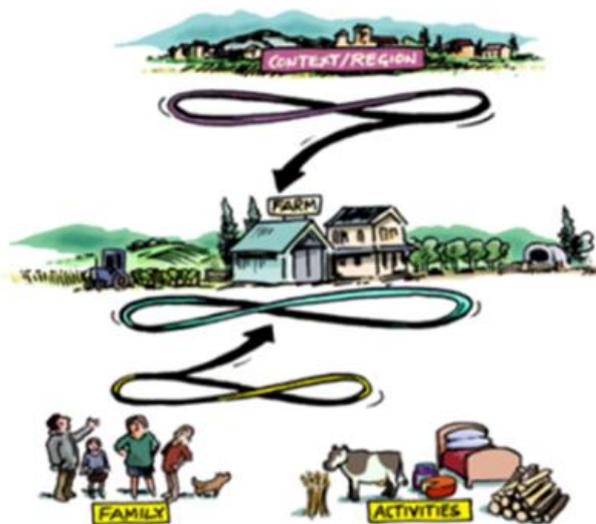


Figure 1. Processes influencing farm resilience. Source: Darnhofer and Strauss, 2015, p. 45; based on Holling, 2001

Empirical evidence

Drawing on a field study in the Ötztal valley (Tyrol, Austrian Alps), this study provides insights into the interplay of tourism and farming. We examined two villages, Vent and Obergrugl (both part of the municipality of Sölden) (Figure 2). The valley of Vent is very narrow and surrounded by steep slopes. It leads into a valley floor with the village of Vent (1906 m). Only the Rofenhöfe farmsteads are situated further into the valley, and are the highest per-

³ For details see: <http://www.rethink-net.eu/home.html>.

manent settlement area in the Eastern Alps. The valley leading to the village of Obergurgl is wide, with gentler slopes than in valley of Vent.

Originally, these were typical Alpine agrarian communities based on livestock farming, tourism in both villages started as early as the 19th century. In the beginning, tourists were attracted by glaciers and the proglacial lakes. Even then – forced by the crisis of mountain farming caused by industrialization - farmers hosted tourists in their houses and served as mountain guides to sustain their livelihood. In Vent, ‘glacier priest’ Franz Senn gained special importance as he considered tourism a chance to counter poverty and outmigration. He encouraged farmers to train as mountain guides (Scharr, 2013). Skiing tourism in Obergurgl emerged in the early 20th century. The first ski lift opened in 1948 and Obergurgl developed into an internationally recognized skiing destination, with significant lower number of tourists in summer season. In contrast, the ski resort of Vent is relatively small. However, the village focuses on mountaineering activities and is today classified as a mountaineering village (ÖAV, 2017), which results in an economic balance of summer and winter seasons.

In 2017, Obergurgl counted nearly 500 inhabitants, among them 15 active farmers. The population in Vent is less than 150, with eight active farmers (STATISTIK AUSTRIA, 2017). Even if diversification is dominant in farming in the Ötztal, there are still some full-time farmers (see Table 1).

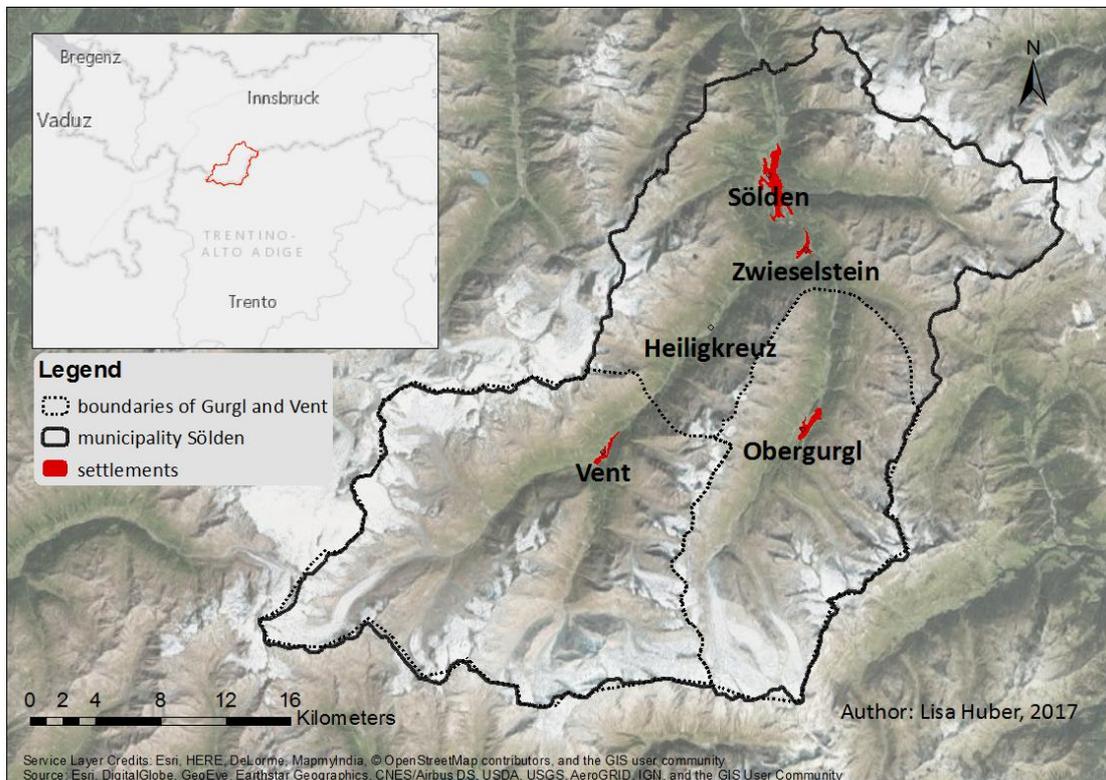


Figure 2. Location of the study areas (Source: based on Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN and the GIS Users)

Table 1. Farming in Obergurgl and Vent

		Obergurgl				Vent			
		1990	1999	2010	2017	1990	1999	2010	2017
agricultural hold-ings (n)	total	36	28	25	n.a.	9	9	11	n.a.
	owned by private individuals	20	16	16	15	7	7	8	8
	of these, full-time farming	n.a. ⁴	n.a.	4	n.a.	n.a.	n.a.	3	n.a.
	of these, part-time farming	n.a.	n.a.	12	n.a.	n.a.	n.a.	5	n.a.

⁴ Data not available.

	owned by agricultural communities or legal entities	16	12	9	n.a.	2	2	3	n.a.
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Methodology: Farm Biographies

We investigated the history of farm development on sample cases in Vent and Obergurgl. We selected two family farms in each village, which had been suggested to us during previous explorative expert interviews for a first round of data collection. Usually, biographical – narrative - interviews serve to examine the life story of a person; where the focus is on the narration of the interviewee (Küsters, 2009). However, our interest was the life story of the farm rather than the personal biography of the farmer⁵. Therefore, a narrative generating introductory question stimulated the interviewee(s) to express their own orientation patterns through descriptions. A timeline made of carton and starting in the 1970s helped the farmers to express and accentuate specific moments of their farm, which we noted directly on a paper arrow. This helped to visualize the development of the farm for farmers and to trigger deeper reflection. After a narrative phase, we asked immanent questions, relying on aspects already mentioned by the interviewee, to initiate a continuing narration and to clarify ambiguities. Afterwards, we raised pre-prepared exmanent questions (see Küsters, 2009).

We first prepared thematic courses of each interview to gain a structured outline of the material. Then we selected sections for further verbatim transcription, as in some cases farmers digressed in their narrations (see Przyborski and Wohlrab-Sahr, 2009). As the farm biographies do not focus on the experiences of the farm family, but rather on the consequences for the farm management, we decided to deviate from other hermeneutic, reconstructive data evaluations of narrative interviews recommended in the literature (see Küsters, 2009; Przyborski und Wohlrab-Sahr 2009). We applied a summarizing qualitative content analysis according to Philip Mayring (2007). It aims to reduce the material for analyses in such a way that the essential content is preserved and to create a text corpus which still reflects the meaning of the basic material.

First results

Findings presented here are first extracts of the data analysis. Table 2 gives information about the farmers participating in the farm biographies. Just one farmer nowadays farms full-time, the other three rely on diversified income. All farmers stated that they receive public transfer payments and a further direct payment at municipal level provided by the tourist association. However, those payments only make up a small part of their income.

Table 2. Participating farms of the farm biographies

Farm	Location	farm	farm	farm size (ha)			additional income ^b
				1990	2000	2010 ⁷	
1	Vent	full time	horse breeding, suckler cows	1198	640	34	(ski instructor, on-farm tourism)
2	Vent	part time	cattle, pigs, sheep	28	26	7	ski school, holiday apartments
3	Obergurgl	part time	goats, sheep, bees	19	19	4	wood carver, (ski instructor)
4	Obergurgl	part time	cattle, chicken	34	8	7	bed and breakfast, (ski instructor)

⁵ The development of the farm is of course often related to personal issues of the farmer and the farm family.

⁶ In brackets earlier occupations of the farmer.

⁷ The decline in mountain pastures from 2010 goes back to the transition to capturing mountain forage areas. Prior to 2010 the areas submitted within the agricultural structure survey had always been those of the cadastral map of mountain pastures.

Farm 1

Farm 1 was farmed part-time until the 2000s; at the time, the farmer was working as a ski instructor and his wife ran tourist accommodation on the farm. While he was able to switch easily between his duties on the farm and as a service provider outside the farm, this was much more difficult for his wife on the farm because of the spatial proximity of the tasks. After a disturbance in the 1980s, when an avalanche destroyed the stable, the farm received remarkable financial support and credit facilities encouraged by the province of Tyrol and the mayor of Sölden to replace it with a larger stable. In the late 1980s, the farmer bought first horses for breeding which became a success in the mid-1990s. The farmer put this success down to his 'sixth sense' and good fortune.

When Austria joined the EU in 1995, organic farming also became eligible for support, so that Farm 1, with the recommendation of local farming consultants, officially turned into an organic farm. Economically this was important for the farm because of the compensation payments for agricultural land, but it mattered little for the sale of the produce as this was sold in direct marketing to clients. Since the 2010s, the farm has changed from keeping dairy cows to suckler cows, as there was no use for the milk other than to feed the calves. Earlier (before horse breeding), milk from cows was used to produce butter sold in the region; meat was sold directly to bigger costumers. However, nowadays there is no longer a market for direct sales. Some meat is still given to customers in the region known personally to the farmer. Horse breeding is integrated into the international market, where the offspring is sold. Main horses are award winners at international horse shows.

Farm 2

Farm 2 is a part-time farm, generating income from several sources directly linked to tourism. The farm family is active in livestock farming; however, additional income is generated on as well as off the farm. The newly built farmhouse includes two separate holiday apartments, run by the farmer's wife. The farmer himself owns a local ski school, where he also works as a ski instructor. During the high skiing season the old farmer helps with the farm work. In the late 1980s, a new stable was built to replace an older one. Other infrastructural adaptation has gradually been added, such as an indoor crane, ventilation or a storage barn. By then the farm family had started to farm organically. However, regulations were perceived as too strict, so that they abandon that after a while. Nevertheless, the farmer admits that organic farming might again be an option today.

The livestock changed slightly during the last 40 years. Cows and pigs remained, whereas goats were replaced with sheep. The meat of the suckling calves and pigs largely goes to a local hotel owned by a cousin of the farmer. In case the hotel does not need the meat, it is easily sold wholesale to the *Tiroler Vieh Marketing* (regional cattle trade organization). Thus, the sale for the farmer is guaranteed one way or another with good conditions. Milk and butter is consumed on the farm by the farming family and on demand given to tourists, even when hygiene regulations prohibit this.

Farm 3

Farm 3 relies on different income sources directly linked to tourism. The farmer himself carves wooden figures, which are sold by his wife in their own little shop, mostly as souvenirs to tourists. However, the farming family has deliberately decided against providing accommodation for tourists. In the 1980s, the old farmer built a new stable, mainly for sheep, as he was active in sheep breeding. When the current farmer took over, he changed to animal husbandry. After the farmer suffered a serious work accident in 2010, the farming family received fundamental help from members of the wider family and other local farmers with their tasks on the farm. However, they decided to stop cattle farming and to expand goat and sheep farming, as cattle farming is more labour-intensive than extensive goat and sheep farming. Today they admit that if it had not been for the accident, new barn regulations would have also led them to the decision to stop cattle farming.

Most of the produce is for consumption by the farming family. However, they rely on a range of personal contacts for direct marketing of goat meat and honey. The wool of the sheep goes to the regional sheep's wool centre, which offers guaranteed sales, albeit at a low price. The farming family does not want to be included in the promotional brochure of the regional nature park for direct sales, as they fear that they may not be able to meet demand because of their small production.

Farm 4

Farm 4 generates most income from its bed and breakfast apartment house run by the farming wife. The farmer is responsible for the farming activities. Since he took over the farm in the 1980s, tourism has become more important. Regular financial investments have been made to improve the quality of the accommodation infrastructure and to raise the number of beds, especially after the death of the old farmer. Additional investments in farming have gone into the construction of a new stable and further improvements, such as an indoor crane and other machinery.

The farm used to keep sheep, but concentrates today on cattle and chicken farming. Traditionally, milk and butter was sold to local hotels, as the regional dairy *Tirol Milch* never collected milk in Oberurgl (nor in Vent). According to the farmer, the local cooperation ended because of new hygiene regulations. Nowadays the milk is fed to the calves which are sold wholesale to a butcher.

Discussion

The results presented above will be discussed according to the resilience strategies of the farms under investigation and their integration with tourism. We will further focus on their ability to buffer or to adapt as a reaction to a shock or as a proactive resilience strategy.

According to the classification of resilience strategies in the RETHINK project (see above), only Farm 1 opted for the development into a niche market within the agricultural sphere. This option allows the family farm to rely solely on farming incomes, since the niche became fully integrated. However, this strategy for full-time farming was triggered by an external shock (the avalanche) and the resultant financial support, and remains a niche option, which cannot be transferred more widely. The other three farms developed and deepened activities that go beyond traditional farming. Here, different forms of the integration of tourism and farming appeared. Often farmers apply different forms of integration. All of them receive payments from the municipal tourist association for farming land in the area. This voluntary payment by the tourist association demonstrates the municipality's awareness of farmers' contribution to landscape maintenance within the region. Some of the farms in this study also receive compensation from ski lift operators for the use of their farmland. Even if those payments are appreciated by the farmers, they are not sufficient to maintain a farm. Therefore farmers opted for deepening the integration of activities. Two farms (2 and 4) intensified agri-tourism activities and provide tourist accommodation. They offer a professional service, where guests can find the linkage to farming, but do not necessarily need to be aware of it. In both cases, this service is run by the farming wife. The provision of farm-based meals is limited, as they do not produce breakfast ingredients. All four farmers are or have been active in off-farm employment in tourism. Here the option to supplement income during winter as a ski instructor is very convenient, which farmers describe as easy to combine with farm work.

In the farm biographies, farmers mentioned that the cooperation between hotels or restaurants and farmers was traditionally very strong and farming produce, such as milk, butter and meat, was delivered to them. They regret that this cannot be practiced anymore. This is caused, on the one hand, by hygiene regulations for the production of food, on the other, by rationalization of gastronomy supply chains and restaurants opting for more convenient solutions. However, when the link (family ties) between the farm and restaurants is strong enough, the provision of food for the tourism industry remains a practical strategy, as Farm 2 demonstrates.

It seems that the farming families need to be highly motivated to continue the farming activity, because additional sources of income also offer opportunities to change completely into

another profession (as it is the case for Norway where farm work in tourism facilitates farm abandonment, see (Schermer et al. 2016)). Nevertheless, farmers in Obergurgl and Vent prefer to rely on several income sources as a bricolage around their farming activities. Thus, the farm remains the central point of their livelihood even if it is economically not profitable. Therefore, diversification of income sources is a crucial parameter for the three farms, not just to buffer disturbances, but also to cross-subsidize their farming activities. Further, farms 1 and 3 demonstrate that they have been able to adapt to a shock. Whether a natural disturbance destroying infrastructure or a work accident incapacitating the farmer: in both cases external help influenced the capacity for adaptation, either on a financial or a human resources level.

Conclusion

The farm biographies of this study demonstrate that the integration of farming and tourism is highly enmeshed. However, this relation used to centre more on the exchange of agricultural produce, whereas nowadays it is mainly based on non-farming activities. Relying on additional income from tourism does not necessarily mean that there is no way back into full-time farming, as Farm 1 illustrates. Income diversification enables farms to maintain their farming activities and thus to continuously buffer or adapt their farm management. However, it needs a strong will and an identification with farming to maintain the farm, to be resilient and not to transform completely into another system of a tourism provider.

Our methodological approach of narrative interviews to investigate farm biographies proved an adequate tool to reveal farm development. The timeline shown to the interviewees triggered further reflection and allowed us to obtain deeper information. With additionally conducted farm biographies we envisage to develop a typology of farm resilience strategies.

We conclude that agroecological concepts urgently need to consider social and economic diversification strategies, which lead especially family farms to new farming arrangements. In the Alpine area, and presumably in other mountain areas, farming systems rely on diversified income to maintain farming activity. It is precisely the combination that allows them to cope with stressors and to aim for an environmental contribution of farming.

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