REGARDS
REsilience of marginal GrAssland and biodiveRsity
management Decision Support

Work Package 4
Case Study Report Stubai Valley/Austria

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Socioeconomic Structure

Description of area – statistical data

The Stubai valley with a length of 30km is located in the south of Innsbruck. The wide valley where the villages (municipalities of Mieders, Telfes, Fulpmes and Neustift) are located has an altitude of roughly 1000 m. The valley narrows towards the upper part where a glacier dominates the landscape. In terms of traffic the Stubai Valley is well connected via the Brenner motorway. In particular, the front section of the valley is under the influence of the city region of Innsbruck: strong growth of settlements and high commuter rates. Fulpmes and Neustift are two municipalities in the valley with strong economies. Fulpmes has a long history in metal processing. The cooperative “Stubaier Werkzeugindustrie” (Stubai tool industry, well known as provider of gear for alpinism) and relevant training institutions is located there.

The Stubai Valley has developed into a powerful tourist region with Neustift at the upper end of the valley as main center. This is based on the spectacular mountain scenery and the glacier with several ski areas. Neustift ranks on the 10th place within Austria with a total sum of 1.205.613 overnight stays 2012 (Statistik Austria 2013b).

The main part of the mountain area is declared as landscape protection area (Tiroler Landesregierung 2013). Until the 1970s the Stubai Valley has had mainly an agrarian structure, but since then the labor force has shifted massively from agriculture to other sectors such as tourism. Within agriculture an important structural transition has occurred from full-time to part-time farming (1970: 57% part-time farmers, 2000: ~80% part-time farmers, ISIS, Statistics Austria).

REGARDS concentrates on the municipality of Neustift only.

Table 1: Socioeconomic data 2010, Neustift in Tirol

<table>
<thead>
<tr>
<th>Economic sectors</th>
<th>absolute</th>
<th>relative</th>
<th>male</th>
<th>female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhabitants</td>
<td>4495</td>
<td>100</td>
<td>2253</td>
<td>2242</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td></td>
<td>50,1</td>
<td>49,9</td>
</tr>
<tr>
<td>Labor force</td>
<td>2469</td>
<td>54,9</td>
<td>1367</td>
<td>1102</td>
</tr>
<tr>
<td>employed</td>
<td>2376</td>
<td>52,3</td>
<td>1327</td>
<td>1043</td>
</tr>
<tr>
<td>unemployed</td>
<td>93</td>
<td>2,1</td>
<td>40</td>
<td>53</td>
</tr>
<tr>
<td>Agriculture and Forestry</td>
<td>69</td>
<td>2,9</td>
<td>44</td>
<td>25</td>
</tr>
<tr>
<td>Production of goods</td>
<td>245</td>
<td>10,3</td>
<td>177</td>
<td>68</td>
</tr>
<tr>
<td>Energy</td>
<td>10</td>
<td>0,4</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Water supply/waste disposal</td>
<td>11</td>
<td>0,5</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Building</td>
<td>191</td>
<td>8</td>
<td>160</td>
<td>31</td>
</tr>
<tr>
<td>Trade</td>
<td>328</td>
<td>13,8</td>
<td>159</td>
<td>169</td>
</tr>
<tr>
<td>Transport</td>
<td>249</td>
<td>10,5</td>
<td>199</td>
<td>50</td>
</tr>
<tr>
<td>Accommodation and gastronomy</td>
<td>491</td>
<td>20,7</td>
<td>202</td>
<td>289</td>
</tr>
<tr>
<td>Information and Communication</td>
<td>16</td>
<td>0,7</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Financial and insurance services</td>
<td>76</td>
<td>3,2</td>
<td>44</td>
<td>32</td>
</tr>
<tr>
<td>Real estate</td>
<td>29</td>
<td>1,2</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>Freelance/Technical Service</td>
<td>78</td>
<td>3,3</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>Other support service</td>
<td>70</td>
<td>2,9</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>Public Administration</td>
<td>184</td>
<td>7,7</td>
<td>11</td>
<td>74</td>
</tr>
<tr>
<td>Education</td>
<td>104</td>
<td>4,4</td>
<td>31</td>
<td>73</td>
</tr>
<tr>
<td>Health- and Social Care</td>
<td>136</td>
<td>5,7</td>
<td>38</td>
<td>98</td>
</tr>
<tr>
<td>Arts, entertainment and recreation</td>
<td>30</td>
<td>1,3</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>Other services</td>
<td>55</td>
<td>2,3</td>
<td>19</td>
<td>36</td>
</tr>
<tr>
<td>Unknown</td>
<td>4</td>
<td>0,2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Statistik Austria 2013
Agriculture

Table 2: Agricultural and forestry enterprises, Neustift, district, Tyrol, Austria

<table>
<thead>
<tr>
<th></th>
<th>Neustift</th>
<th>District: Innsbruck Land</th>
<th>Tyrol</th>
<th>Austria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1999</td>
<td>2010</td>
<td>1999</td>
<td>2010</td>
</tr>
<tr>
<td>total change %</td>
<td>-9,9</td>
<td>-10,6</td>
<td>-0,6</td>
<td>-11,1</td>
</tr>
<tr>
<td>enterprises with</td>
<td>3,163</td>
<td>2,827</td>
<td>8,8</td>
<td>16,215</td>
</tr>
<tr>
<td>agricultural area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>33</td>
<td>26</td>
<td>8,1</td>
<td>4,620</td>
</tr>
<tr>
<td>Part time</td>
<td>127</td>
<td>122</td>
<td>13,6</td>
<td>9,297</td>
</tr>
<tr>
<td>Farm associations</td>
<td>21</td>
<td>18</td>
<td>-14,3</td>
<td>-0,8</td>
</tr>
</tbody>
</table>

Average areal size of agricultural and forestry holdings (ha total agric area)

<table>
<thead>
<tr>
<th></th>
<th>1999</th>
<th>2010</th>
<th>change %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single farm</td>
<td>14,98</td>
<td>19,95</td>
<td>33,14</td>
</tr>
<tr>
<td>enterprises total</td>
<td>26,87</td>
<td>34,08</td>
<td>26,84</td>
</tr>
<tr>
<td>Full time</td>
<td>22,9</td>
<td>27,9</td>
<td>8,3</td>
</tr>
<tr>
<td>Part time</td>
<td>11,4</td>
<td>16,1</td>
<td>33,7</td>
</tr>
</tbody>
</table>

Source: (Statistik Austria 2013a; Statistik Austria 1999)

Reduction of farms is less in Neustift than on the level of the entire District or Tyrol and much less compared to the national level. This may be due to the employment possibilities close by especially in tourism. Thus most of the farms are part-time managed farms. The main income is derived through employment within the tourism sector. On the one hand this can be on-farm with agri-tourism or direct marketing or on the other hand it can be an off-farm activity in the branches for example at the glacier lifts or in hotels or restaurant.

This statement is supported by the figures on the development of part time farms. While in other parts of Tyrol and especially on a national level the decrease of part time farms is much higher, in Neustift there was mainly a shift from fulltime to part time farming.

The average farm size does not differ significantly from district or country level, however it appears the part time farms tend to be bigger than elsewhere. Again this might be due to favorable employment possibilities and additional income generation on farm through touristic activities.

Farm associations are mainly managing former commons (forest and alpine pastures). While there are some associations where virtually all farmers are members, there are also associations of several individual farms who manage alpine pastures (summer farms) collectively. As shown in table 3 more than one third of all farms are into agri-tourism.

1 Farm associations were part of the category “legal entity” till 1999. Since 2003 was a separate designation.
Numbers of livestock show a concentration process in cattle (less farms with higher numbers per farm), but also some shift from cattle to sheep and goat (it is assumed that the numbers of 1999 subsume sheep and goat). This demonstrates the diverging trend of intensification and concentration on the one hand and extensification on the other.

Table 3: Agricultural Statistics, Neustift 2010

<table>
<thead>
<tr>
<th></th>
<th>Neustift 1999</th>
<th>Neustift 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>absolute</td>
<td>relative</td>
</tr>
<tr>
<td>Farms Total</td>
<td>192</td>
<td>(181 enterprises with agric. area)</td>
</tr>
<tr>
<td>Farms more than 10 ha</td>
<td>82</td>
<td>46,3 %</td>
</tr>
<tr>
<td>Farms less than 10 ha</td>
<td>99</td>
<td>54,70 %</td>
</tr>
<tr>
<td>Organic farming</td>
<td>21</td>
<td>12,8%</td>
</tr>
<tr>
<td>Agritourism</td>
<td>65</td>
<td>35,91 %</td>
</tr>
</tbody>
</table>

**Livestock**

<table>
<thead>
<tr>
<th></th>
<th>Average number per farm</th>
<th>farms with animal husbandry</th>
<th>Average number per farm</th>
<th>farms with animal husbandry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>1173</td>
<td>10,66</td>
<td>110</td>
<td>12,56</td>
</tr>
<tr>
<td>Sheep</td>
<td>1964</td>
<td>30,22</td>
<td>65</td>
<td>2063</td>
</tr>
<tr>
<td>Goats</td>
<td>n.a.</td>
<td>n.a.</td>
<td>536</td>
<td>13,74</td>
</tr>
<tr>
<td>Chicken</td>
<td>13497</td>
<td>287,17</td>
<td>47</td>
<td>7067</td>
</tr>
<tr>
<td>Live stock unit / Live stock unit per hectar of agricultural land</td>
<td></td>
<td></td>
<td>1199,53</td>
<td>0,3</td>
</tr>
</tbody>
</table>

Source: (Statistik Austria 1999; Statistik Austria n.d.)

Farming Systems

The following section is based on the results of interviews with key informants.

1.1. Farms without animal husbandry

no animals: hay, silage for sale, land for lease

As job opportunities outside farming become more and more attractive for young farmers, farm succession is becoming increasingly problematic. Young farmers are not interested in running a farm. Already now some of them lease the land or others or mow once a year and sell the hay or silage.

1.2. Farms with animal husbandry

1.3. Farms with cattle

1.3.1. Breeding with dairy

The interview partners stated that the main production system is cattle breeding in combination with dairy production. This is mainly in an intensive system. In their line of argument dairy farmers have to combine milk production with production of breeding stock to sustain ratability.
Many farmers build their farming identity on being a successful breeder. This is supported by the high percentage of membership in breeders associations which represents important informal, non–state institutions (see graph 1).

<table>
<thead>
<tr>
<th>Breed</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown Swiss</td>
<td>16</td>
</tr>
<tr>
<td>Grauvieh</td>
<td>39</td>
</tr>
<tr>
<td>Sheep (Tiroler Bergschaf)</td>
<td>47</td>
</tr>
</tbody>
</table>

Source: (Tiroler Braunvieh, Tiroler Grauvieh, Tiroler Schafzuchtverband 2013, oral communication of 14.10.2013, LWK Tirol)

The membership in breeders association demonstrates their importance: two third of all farms owning cattle are members of a breeders association and over 70 percent of the farms keeping sheep.

Breeding stock:
The main breeds within this combination is primary the Tyrolean Grauvieh and the Brown Swiss.

Feeding
Cattle are fed with hay and silage plus concentrates. An average use of concentrate feed for one milk cow is between 1 and 5 kg per day.
The interview partners reported a relative high share of grass silage feeding. One reason for this practice is the scarcity of time and labor force of farmers. Farmers take the advantage of technology (grass silage bales) to compensate this socioeconomic development by mechanization. One interview partner pointed out that the main beneficiaries of this new technology regime are the intensive farmers, but more and more extensive (part time) farmers also manage their land in this way.
Most farmers produce enough fodder on their own land. In the opinion of the interview partners only a small percentage must buy additional fodder. They claim that intensive farmers with silage have to buy additional feed more often.

Life stock unit
In 2010 the stocking rate (livestock unit per hectare of agricultural land) in Neustift was 0,3 (see Table 3). This value includes the alpine pasture area as well. As a consequence extensive farms have little grazing pressure. In the alpine pasture there is a huge grazing areal.

Intensity
There are some discussions about the intensity of this system. One farmer claimed that breeding farms are more intensive. In that sense different farmers point out that: “Meadows are rather managed intensively (fresh and younger fodder = more energy). Some farmers opt out of the agro-environmental program (ÖPUL) and switched to artificial fertilizer (mainly intensive farmers).” In contrary one farmer pointed out that there is no artificial fertilization. Another farmer postulated „Here, everything is managed extensively, intensive would be other feeding system with no grazing in summer times.”

Establishment of barn
Most stables are dating from the 70ies and have tethering housing. Interviewed farmers assured that new stables are equipped with free run for animals. Investments in new stables are unprofitable for farmers in Stubai valley. They argue that farmers who want to build new or extend their barn have to have free run for animals with a transition period until 2020. In their argumentation this will be a critical point for farmers because most farmers have no available additional space for adapting their barns. The interview partners also point out that it is economically not possible to invest in new barn respectively to offer open space for cattle (in operations of their size).
Newly build barns operate with a liquid manure regime. They produce more (liquid) manure than the older smaller barns with solid manure. Intensive farmers have milking robots (or at least milking parlors) instead of the milking machine used in small barns.

Excerpt from a key expert interview with an advisor on farm building construction (Chamber of agriculture Tyrol):

There is also the possibility to build and rebuild tethering systems in Neustift. Within the regulation for animal husbandry (BGBl. II Nr. 219/2010) are new legal requirements for both barn systems tethering housing and free run for the animals with a transition period until 2012 and 2020.

Costs for new barns in Austria (feasible in Austria) are about 300.000 €. Farmers have the possibility to apply for subsidies to reduce the costs about 20%. This kind of subsidy is paid out by the federal government. There is a certain amount of money allocate within the funding period. The budget is exhausted for the current period until 2013. The interview partner indicated that barn modifications in Neustift are possible with investment costs beginning with 85.000 €.

Manure systems:
more than ¼ of farmers: manure removal by sliding bars ($chubstangenentmistung$)
less than ¼ of farmers: liquid manure system
½ of farmers: manual manure removal system

Organic farming:
“Animal husbandry with tethering housing is forbidden. There are two exceptions (until the end of 2013) which are relevant for some cases in Neustift:

Barns with tethering housing system existing before 24.08.2000 may be used until 31.12.2010 with the possibility of extension until 2013. There must be a strewn lying surface and a regular access to open air are granted.

In "small holdings" (companies with more than 35 cattle LSU annual average stock) cattle can be kept in tethering. Animals during the grazing period have access to grazing land and at least twice a week access to open air areas.” (BIO AUSTRIA 2010)

It is expected that the (already low) number of organic farms will decrease due to this.

Fertilization
The regime change in fertilization is still at a starting point. Most farms in the valley operate with solid manure, but there is the trend towards liquid manure, because of the new barn constellation (free run for animals) and technology. Furthermore it is easier to bring the liquid manure out by pumping technology. It is less labor intensive. Liquid manure is also used on alpine pastures. Farmers use pumping technology (with pipes or vacuum barrels) for application.

Land management
Mowed pastures (valley)
In the valley there is a mix of enclosures and strip grazing. In spring and autumn there is often rotational pasture (with electric fence). In general dairy farmers graze their cattle during autumn and spring time, depending on barn establishment and growth stage of the fields. In spring cows are out until the first cut. Some intensive farmers pasture 1 time and cut 3 times. During summer times most animals are on the alpine pastures. There are just a few farmers who leave their cattle in the barn during summer.

Meadow (valley)
In Neustift there are several types of meadows. The mowing frequency varies between one cut per season in steep areas and four cuts in flat areas. There are different perceptions about the intensity of land management in the valley among the interview partners. On the one hand some farmers argue that “in the valley own areas are mostly meadows (extensive because of the abdication of fertilizer due to ÖPUL-participation). Grazing takes place only in spring and autumn.
They are all extensively used.” “Here, everything is extensively managed. An intensive way would require another feeding system with no grazing in summer times.”

On the other hand other farmers pointed out that: “Meadows are rather managed intensively (fresh and younger fodder = more protein). Some farmers leave ÖPUL due to low payment and they switched to artificial fertilizer (mainly intensive farmers).”

One farmer recognized an intensity causality: “Farms with free run barns are intensive. They have liquid manure regime and so they have liquid manure which they have to bring out. They apply liquid manure on high intensive grassland (four cuts) between every cut. They have to. And so there are some intensive farmers in the valley.” At the same time there exist extensive farms as well: “They have tethering housing with solid manure. They only have the possibility to apply the manure twice a year and farms with sheep only once a year.” Besides the intensity discussion all farmers agreed that extensive farms are dominant in Neustift.

Areas close to the farm are managed more intensively (sometimes 3 cuts) and in contrary leased areas are mostly more far away and consequently extensively managed. In the valley own meadows get cut two or three times and are mixed intensive/extensive. Steeper areas are extensively managed.

The majority of meadows Farmers of meadows are mown twice a year. “80% of meadows in the valley are mown twice (hillside) and some, in easy cultivatable areas and silage, three times.”

Date of cut depends on the intensity of the cultivation.

Intensive farmers, breeders, (which are sometimes not in the agro environmental scheme) have their first cut in the mid of May. (protein rich grass)
Others do their first cut at the end of May – end of June. It can be delayed about 14 days because of the weather conditions and some farmers mow later. In terms of bad weather condition farmers compensate the situation with silage technology. “You can bring in the hay within one day.”

Within cutting frequency of three times the farmer has to start mowing in mid of May. “These farmers have intensively managed areas which are close to the farm.”

One farmer argued: “You are not allowed to cut the whole meadow before the first of June and flower areas not before the end of the year (ÖPUL), just rarely by hand (sometimes on alpine pastures); there are discussions about the damage of soil by mowing-machines (strong soil compaction)”

2. Cut: end of July (6 - 8 weeks later)
3. Cut: Depends on weather conditions in autumn (south winds) - In easy manageable land - September - October

Re-seeding of grassland is sometimes necessary areas which are damaged by erosion and overgrazing or in areas with poor grass or temporary pastures.

Choice of seeds are through advice from the Chamber of Agriculture or driven by experience. “Grass-seeding must be also climate adapted; but not very often.” One interview partner pointed out that you have to seed partially after the cut (for new stock); “But in good areas it’s better to do nothing.”

The soil in the valley and alpine pastures are rather acidic. All interview partners agreed that liming would be necessary, but in a long-term treatment, success is not proofed -> PH-value decreases. For some farmers the soil analyses and treatment with lime are too expensive and the organisation of the treatment is too complicated for the farmers. Meadows are divided in several distant plots. They have rarely one big area, which complicates the operation.

Mowing is partially by hand and partially mechanical, depending on the steepness of the terrain.

Alpine meadows

Alpine meadows are always in combination with grazing. They mow the grassland once a year at a late date and for the second grass is used for grazing to extend the pasture time. One interview
partner argued that below 1600m: meadows are all accessible and managed intensively. There exist no meadows above 1600m. Meadows in the alpine areas are mowed if they are accessible and agricultural machines can be used. Consequently they are fertilized with manure spreader and farmers also sometimes make silage. The interview partners argue that it is important to have access to these grassland areas, because they are in danger to be abandoned.

Alpine pastures
own (private), alpine pastures (summer farms) exhibit mainly the following characteristics: pasturing, accessible and extensive. There are just a few inaccessible. One interview partner assured that some are managed intensively (meaning that concentrates are fed). If cows are on the alpine pasture they are in most cases are continually herded. Alpine pastures are often organized in a collective way. Animals on alpine pastures are always outside. One farmer mentioned that for a bigger part they are accessible and rather extensively managed but there are different opinions about the accessibility and intensity of management of the collective pastures in Neustift. On the one side a farmer stated that all collective pastures are accessible and cultivated in both ways intensive and extensive. Another argues that there exist several alpine pastures own and collective which are non accessible. “Mainly stocked with sheep, calves and heifers (young stock). They are all extensively used.” “These alpine pastures and meadows are all run by part time farmers. They don’t have time for managing the land time intensively. So the alpine pastures and meadows become abandoned land.” Additionally one interview partner pointed out: “There is one alpine pasture which is used intensively and in a collective way. You can manage and manure the grassland with machinery. There are a lot of dairy cattle. You can see the intensity factor in the grassland.”

Many farmers do the herding by themselves, some employ herders. There are on average 5-7 farmers in a collective alpine pasture (summer farm). On some summer farms cows are milked. Milking is mainly on collective summer farms but sometimes on individual. The organization differs. Sometimes there is one dairyman for all farmers while on other collective summer farms each farmer is responsible for his own cattle. “Every summer farm operates also gastronomy. This is the main income factor of the alpine pastures, in other words the economic basis. There is no cheese production. But these Alpine huts are decreasing due to (hygiene,...) regulations.” The cattle are mainly on alpine pastures within the vicinity of Neustift. Some farmers bring their animals on alpine pastures outside of the valley.

Communal areas
Communal grazing areas include are in the valley, forest pasture and communal alpine pastures. In Neustift they amount about 8.000 ha.

1.3.2 Specialised Dairy Farm

Breeds:
These farmers keep mainly Brown Swiss and Holstein Friesian cattle.

Feeding:
One interview partner postulated that dairy farming needs concentrate feed: “In Neustift feeding with concentrate feed is normal. Farmers with intensive milk production – the energy must be compensated by concentrate feed.”

Pasture management
Intensive dairy farmers leave their cows in the valley during summer times.
An interview partner argued that: “Young farmers don’t have the time for intensive agriculture; especially in dairy farms you always have to be on the farm (no leisure, no free weekend); which influences the management; man and woman don’t want to give up their part-time jobs.”

Fertilization
An interview partner pointed out that there is a closed nutrient circle in Neustift. There is only fertilization with manure and liquid manure (also some liquid manure from biogas plant) and no artificial fertilizers because of the institutional abdication of artificial fertilizer. The operator of the biogas plant has to make agreements with farmers on the area, where he applies the sludge. Mainly intensive dairy farmers enter these agreements.

1.3.3 Breeding combined with meat production

Breeds:
Grauvieh is also widespread breed in Neustift and a dual purpose breed for meat and milk. Nowadays numbers of breeds for extensive beef production like Grauvieh, Fleckvieh, Tuxer cattle, and Highland cattle are increasing. Farmers with these breeds manage their land extensively. The combination of suckler cow and breeding become more and more relevant in Neustift. There are breeders without a milk quota. Milk is for feeding calves and meat production. In some cases farmers without a milk quota combine an intensive breeding system with (as a side product) production of veal in an extensive way.
Beef production is always in an extensive way. There are no fattening farms in the area. The combination of breeding with beef production requires that the cows are milked and the milk is fed to the calves (no real suckler cow production) in order to have the records on milk production required for sales of breeding stock

Pasture management
Alpine
The technology of electric fence makes it easier for farmers building fence even in the higher areas, for example for suckler cows in bigger grazing areas. Animals prefer hay, not silage; “Feeding with hay instead of silage brings a better meat quality”.

1.4. Sheep & Goats

Sheep an goats are often kept in combination with cattle. However in part time situations some farmers are specializing on sheep and/or goats only
In the perception of the interview partner sheep and goat are increasing. Especially there are more and more goat keeping farms. In former times goats were for poor people, now it has become more and more interesting because there is demand for milk and cheese by consumers with allergies.

There is a sheep keeping tradition in Neustift. In former times breeding was aimed for size and mobility, but now the trend goes more towards meat production. Recently it became more relevant because of extensification of some farming systems due to the part time farming.

1.4.1. Sheep breeding
Most of them are sheep breeders with no meat production. Their products are the breeding stock. The interview partners define breeders as intensive.

Breed:
“Tiroler Bergschaf” is dominant.

Barn establishment
Compared to cattle barn establishments the interview partner argued that “There are not so strict rules. There must be certain space available. The husbandry is naturally regulated. They are six months outdoors, because there is the farmer’s will to let them out of the barn.”

Land management
These one-cut grassland is mostly in combination with sheep. They become more relevant for the Stubai valley. They only have the possibility to bring out the manure once a year. Sheep pastures are often not accessible. They are above 2000m and there is shepherding but not consistently. Sheep and cattle are both in the alpine pastures. Sheep are better suitable for higher levels.
Some of the (smallscale, sheep) farmers sell hay/sell silo for feeding the wild game. The hay for sale is mown in the valley and dried with ventilation. One sheep farmer explained: "We also make silage for hunters. It is from the alpine pasture, - there are also flat bottom, but we are a unique case.” Hay from the hillsides is rarely sold. Sales of large quantities is not possible, not economically.

Alpine sheep pastures
One person checks two or three times per week if everything is ok.

1.4.2. Mutton production
One interview partner pointed out that the farmers will receive more income with mutton production.

Breed:
Among sheep the white (and a little bit brown) “Tiroler Bergschaf” are dominant for ewes, often special meat breeds are used for rams.

Feeding
An ewe with two lambs needs 100kg hay a year – Sheep farmers use concentrate feed for lamb fattening.

There are some, who are rather sporadically into meat production. These farmers manage their farm in an extensive way and are mostly small scale farmers (part-time) who are ideologically driven. In their point of view sheep farming is rather in an extensive practice,
Table 5: Characteristics of intensive/extensive practices according to interview partners

<table>
<thead>
<tr>
<th>Farmers definition of</th>
<th>intensive farming</th>
<th>extensive farming</th>
</tr>
</thead>
<tbody>
<tr>
<td>animal husbandry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dairy cows</td>
<td>suckler cows</td>
<td>mutton</td>
</tr>
<tr>
<td>Breeds and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dairy: Brown Swiss; Holstein Frisian</td>
<td>meat: Grauvieh, Fleckvieh, Tuxer, Highland,</td>
<td></td>
</tr>
<tr>
<td>breeders: Brown Swiss; Grauvieh</td>
<td>Sheep: Tiroler Bergschauf (breeding)</td>
<td>Sheep: crossbreeds (meat)</td>
</tr>
<tr>
<td>barn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free run for animals</td>
<td>Tethering housing</td>
<td></td>
</tr>
<tr>
<td>technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>milking robots (?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid manure: pumping technology</td>
<td>solid manure</td>
<td></td>
</tr>
<tr>
<td>feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>high rate of concentrate feed (more than 5kg) and silage</td>
<td>less concentrate feed</td>
<td></td>
</tr>
<tr>
<td>Buy additional hay/silage</td>
<td>Produce enough own hay/silage</td>
<td></td>
</tr>
<tr>
<td>high share of silage feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stocking rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High stocking rate (&gt; 2 LSU)</td>
<td>low stocking rate (&lt; 2 LSU)</td>
<td></td>
</tr>
<tr>
<td>mowing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>high mowing intensity: (more than three cuts per season)</td>
<td>low mowing intensity: (one or two cuts)</td>
<td></td>
</tr>
<tr>
<td>pasture 1 time and cut 3 times</td>
<td></td>
<td></td>
</tr>
<tr>
<td>first cut mid of may (more protein)</td>
<td>first cut after flowering</td>
<td></td>
</tr>
<tr>
<td>Mainly productive grass species, (Fettwiese)</td>
<td>no artificial seeding, different relation between grass and herbs (more herbs) (Naturegart)</td>
<td></td>
</tr>
<tr>
<td>land management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>intensive liquid manure regime (high amount) spraying</td>
<td>solid manure (spreading)</td>
<td></td>
</tr>
<tr>
<td>use of artificial fertilizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid manure is spread frequently between every cut</td>
<td>Solid manure is applied only twice a year (cattle), or once a year(sheep)</td>
<td></td>
</tr>
<tr>
<td>huge grazing area in the alpine pasture; no fence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flat areas</td>
<td>Steep areas</td>
<td></td>
</tr>
<tr>
<td>Areas close to the farm</td>
<td>leased areas are mostly more far away and consequently extensive</td>
<td></td>
</tr>
<tr>
<td>pasture management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>no pasturing for milk cows (only calves and heifers and no permanent personal)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>with dairy cows and intensive fertilization with liquid manure + concentrate feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subsidy scheme</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In OPUL scheme</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Actors**

**institution**: rules of behavior patterns and norms which evolve from the social co-existence, regularities of their behavior, no need for members, results of organizations

**organization**: has members, persons and groups who have a common goal (and are governed by institutions) thus organizations may be actors.

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**Graph 1: Influencing actors on a national level in Austria 2013**

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**ORGANISATIONS**

**BIO Austria**
Association of 13,000 Austrian organic farmers.

**AMA**: Austrian agrarian marketing board
is a national institution (non-governmental, but closely affiliated) and is responsible for agricultural marketing. Besides AMA administers and controls support measures.

**ÖBF**: Österreichische Bundesforste
With the care and management of 10% of the national territory, the ÖBf AG is the largest natural area supervisor and manager, the biggest forest enterprise and the largest owner of hunting areas and fishing waters. (ÖBF 2013)

**AGES**: Austrian Agency for Health and Food Safety
The tasks of the AGES divided into five competence areas: food security, food safety, animal welfare, public health, medicine market authority.

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**INSTITUTIONS**

**Organic certification**
With the signing of the inspection contract with a government-authorized inspection body, the farmer must comply with all organic standards. (Bio AUSTRIA 2013)

**ÖPUL**
national, agro-environmental programme, main support measure in pillar 2 (rural development measures) to support an environmentally sound and extensive agriculture. The main measures are organic farming, alpine pasturing, integrated production, rare breeds and plant varieties, also measures to prevent water pollution and nature conservation.

**Cross Compliance**
"Cross compliance means the respect of the legal standards applicable to the environment, to food safety and animal welfare." (Lebensministerium 2012)

**Habitat Directive**

**Birds Directive**

**Water Framework Directive**

**Waste Framework Directive**

**Sewage Sludge Directive**

"EU directives lay down certain end results that must be achieved in every Member State. National authorities have to adapt their laws to meet these goals, but are free to decide how to do so." (European Commission 2012)
**ORGANISATIONS**

Wildbach und Lawinenverbauung (Torrent and Avalanche Control)
A department of the regional government in charge of protection against Alpine natural hazards

BAM (Bundesanstalt für alpenländische Milchwirtschaft):
Federal Research Institute for Alpine dairy farming
...sees itself as a service institution to strengthen dairy farming in the Alpine region and as a partner in all aspects of milk processing, from raw milk to the finished product. It is part of the Ministry of Agriculture. (Bundesanstalt für Alpenländische Milchwirtschaft (BAM), 2013)

AMT: Agrarmarketing Tyrol (AMTirol)
develops and supports projects to strengthen the market position of agricultural food producers. Funded and financed by four Institutions: Provincial Government of Tyrol, Chamber of Agriculture Tyrol, Tirol Werbung GmbH (Tourism board) and Chamber of Commerce Tyrol. (Agrarmareting Tirol 2012)

Bauernbund:
" is a political union of the Tyrolean farmers, the rural youth and the people in rural areas." The Bauernbund is one of six sub-organizations of the Austrian Conservative Party (ÖVP) and with 18,000 members the strongest. (Tiroler Bauernbund 2013)

UB: association for Agri-tourism

Maschinenring:
Joint machinery association; a service company which offers labor force, machinery and other agricultural services to members and others

**INSTITUTIONS**

Milchliefergenossenschaft (dairy/milk delivery cooperative)
From 1st April 2014 onwards 195 farmers from Wipptal and Stubaital will deliver and sell their milk to the dairy farm Sterzing (South Tyrol/Italy). They form a cooperative to coordinate delivery and defend their interests.(Tiroler Bauernbund 2013)

Tiroler Viehmarketing
a nationally and internationally operating cattle trading company (association of the Tyrolean animal breeding associations (95%) and the Tyrol Chamber of Agriculture (5%))

INSTITUTIONS

Investitionshilfe
financial funding in case of emergency

animal shows
Event for animal breeders: opportunity to rate their animals.

animal auctions
Opportunity for farmers (breeders) to auction their cows off.
ORGANISATIONS

**Gemeindegutsagrargemeinschaft**
farmers association on municipal level, all farmers are members, administers the „commons“ (pastures in the valley and the alpine region, forests)

**private Agrargemeinschaften**
Collective management mainly of alpine pastures, private association of a few farmers

**Ortsbauernrat**
Local farmers representation, not formalized but close to Bauernbund

**Ortsbäuerinnen**
Non-formalised association of farm women

**Bioheizwerk Neustift GmbH:**
Biomass heating power station, supplies energy to houses for heating

**Gletscherbahn**
Glacier cable car company

INSTITUTIONS

**Altkuhverwertung**
Arrangement with the “Gletscherbahn” to buy old cows and use them in their restaurant

**Farmers market**
Weekly market supplied by a small group of farmers
Subsidies and important support programs

Support by the CAP

**Graph 4: Distribution of subsidies, two pillars 2011**

<table>
<thead>
<tr>
<th>EU</th>
<th>Austria</th>
<th>Tyrol</th>
<th>Neustift</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st pillar CAP: 78%</td>
<td>1st pillar CAP: 80%</td>
<td>1st pillar CAP: 82%</td>
<td>1st pillar CAP: 82%</td>
</tr>
</tbody>
</table>

Source: bmlfuw: Invekos 2013; Grüner Bericht Tirol 2012; Grüner Bericht Austria 2012, own calculations

**Graph 5: Distribution of the overall subsidies in Neustift 2011**

- 1st pillar: 37%
- 1st axis - IMPROVING THE COMPETITIVENESS OF THE AGRICULTURAL AND FORESTRY SECTOR: 18%
- 2nd axis Natural handicap payments to farmers in mountain areas: 2%
- 2nd axis Agri-Environmental payments (Öpul): 3%

Source: bmlfuw: Invekos 2013; Grüner Bericht Tirol 2012; Grüner Bericht Austria 2012, own calculations
Farmers in Neustift get the major part of the public financial support from the second pillar. Within this most influence is given by the natural handicap payments and the agri-environmental payments (ÖPUL).

Graph 6: Comparison Distribution of Axis 2- Neustift, Tyrol, Austria 2011 (%)

Source: bmlfuw: Invelos 2013; Grüner Bericht Tirol 2012; Grüner Bericht Austria 2012, own calculations
References


Bio AUSTRIA, 2013. Grundlagen Bio AUSTRIA.


