

TRANSFARM

Vocational education and training for transhumance practitioners



A transhumant herd in Wetterau district, Hessen (photo: A. Kruse)

NATIONAL REPORT – Germany

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1. Introduction

In Germany, as in other countries, people have relied on livestock for many millennia, from raising a few chickens on their own farm for their daily supply of eggs to migratory livestock farming with small and large ruminants in search of pasture and water to ensure a supply of milk, wool and meat. Written proofs of transhumance do exist at least since the 13th century [http1].

From a rural development and landscape perspective, agriculture has enormous impacts on the German cultural landscape. These impacts lead to positive and negative externalities of the basic purpose of self-preservation or livelihood from agriculture.

This, then, is the baseline situation we are looking at when we talk about transhumance agriculture as a specialty of agriculture in an ever faster changing environment of surrounding actors with all their ideas and desires. Transhumance is embedded in economic, social and ecological framework conditions, in the needs of the transhumance practitioner and in the specifications and wishes articulated from the surrounding environment.

The ability of small ruminants to convert cellulosic plant material indigestible to humans into meat, milk and fibre has been exploited under a variety of management conditions: from extensive traditional systems such as marginal land grazing and transhumance, where environmental conditions are the limiting factor for production, to high-intensity meat and dairy farms, where the animal's inherent potential is fully utilised. Shepherds still pass on traditional knowledge today, have an extensive specialist vocabulary, attach importance to clothing befitting their status, professional honour and performance competitions [http1].

In Germany, data for transhumance farming on a sound, comprehensive and updated national and federal level are not available. At the same time, it can be stated that following the various work done by researchers, administrative employees or checking existing practical experiences which can be found in the internet horizontal and vertical transhumance take place all over Germany: its scale as well as its practice varies considerably and there are "hot spots" in some places. Unfortunately, (scientific) studies, literature as well as associations and organisations act mainly with respectively on local/regional level (e.g. Beier, H. 1984, Beinlich, B. 1995, Böhm, M. 2000). The only comprehensive overview that exists dates from 1987 by W. Jacobeit. However, it covers not only Germany but Central-Europe. A basic publication about shepherds dates from 2015 (Hornberger, T.). Last but not least, it can be said, that the different forms of transhumance and also the different animals, are rarely treated together in one publication or study with exception of Luick, R. (2004). Another reason, why this report on the situation in Germany is rather difficult.

Regions where transhumance takes place are characterized by rather varied mosaics of use, such as in the alpine pastures (Upper Bavaria) or the Alps (Allgäu). Alpine pastures/alpine forests, river plains, valleys and low mountain ranges are among our oldest cultural landscapes. They had been developed through the hard work of farmers, shaped by centuries of grazing with farm animals. Transhumance landscapes are an indispensable basis for biodiversity and represent an above-

average number of species (Gerken , B. & M. Görner, Eds. 2000, Plachter, H. & U. Hampicke, Eds. 2010). Today, often these cultural landscapes turn out to be "residential, leisure and holiday paradise" (STMELF; 2010; p.3). However, agriculture and tourism do not always form a symbiosis. It is challenging.

Although most typical forms of transhumance are based on herding sheep or cattle, the project will also look at other systems and the keeping of other animals to give indications of possible niches for pastoralists and transhumance farmers and entrepreneurs.

The following report is mainly based on a desktop research covering data and studies available online and in paper as well as on exchange by email and on phone.

2. Current situation of transhumance

As will be explained in more detail in mentioned in the introduction, in Germany, there are different forms of transhumance practiced, with mainly cattle and sheep. Although, traditionally there are also goat transhumance known, today, the use of goats, horses and others is mainly restricted to protected area's land management.

- Vertical transhumance is practised in the Alps
- Horizontal transhumance is practised in many middle-mountain areas in many different parts of Germany. It exists also in the plains on heathland and along the coast.
- Furthermore, with an increasing importance, transhumance without herdspeople is used on protected areas.
- Additionally can be mentioned special forms and variations of transhumance like keeping sheep on the dykes ("Deich-Schäferei")

In 2017, the Federal Association of Professional Shepherds in Germany counted 989 full-time shepherds and 1.1 million ewes, 0.6 million fewer than in 2001. According to the Baden-Württemberg Sheep Report, the average wage was 6.15 euros per hour (Bruhns, A. 2018).

In Southern Germany, nearly 50 % of shepherds have resigned from their transhumance profession these last years. Furthermore, one of the most reputable shepherd's schools was closed, the Sheep farming at the Hohenheim Agricultural School. According to the committee, only two to six new training contracts have been concluded each year over the past six years before closing the school. In future, anyone who wants to become a shepherd in Baden-Württemberg will have to attend vocational school in Saxony-Anhalt or Bavaria [[http4](#)].

Farmers and ranchers keep different species and breeds of animals and adopt practices according to their own circumstances, abilities and desires, but also in response to external changes. E.g. shepherds used to stay with their flock overnight in the shepherd's cart. That is almost nowhere to be found in the Swabian Alb. Nowadays the sheep are fenced in overnight with an electric net, the shepherd walks or drives home (Götz, U. 2016).

Last but not least, also in Germany, livestock production serves as a source of food and income from the sale of livestock and livestock products – even if, especially with regard to the EU Common Agricultural Policy (CAP), the dependence on political decisions becomes more important from year to year. In many societies, livestock are also a store of wealth and assets and therefore serve income and food security.

Finally, livestock are also kept for social occasions such as dowry and prestige, or for social farming purposes.

2.1 Some short characteristics of important transhumance regions in Germany

Donau-Ries, Northern-Bavaria:

On 800 ha oligotrophy pastures at the Slope of the Nördlinger Ries no other agricultural use is possible. At least 500 plant species can be conserved by the cooperation between transhumance shepherds and nature protection. Transhumance still active.

Lechheiden, South of Augsburg, Bavaria:

The today Heathland was created through transhumance sheep grazing on alluvium alpine gravel and had been too less nutrient for other flocks. Over centuries, the large area, in which men had cleared all forest, had been the summer grazing land for Southern Germany. Especially as Augsburg was one of the most important wool markets in Germany. Until today, we find the highest number of breeders and sheep in Allgäu and Middle-Swabia, with a special focus on Merino sheep. On average, the latter have bigger herds (more than 1000 animals) than breeders of other breeds.

Fulda, Bavaria & Rhön (Thuringia/Hesse)

From the Hochstift (bishopric) Fulda, various forms of sheep farming have been documented in old files, especially from the 18th century: Sheep farms were referred to as hereditary shepherds, in which mostly larger land holdings were sealed by a certificate of award and passed into the shepherd's possession. Most of the time, estates were considered and it was the rarer variant. An early form of cooperatives was named as Laßschäferei. The comrades had no claim to ownership of the areas and had to apply for their use every year. The rulers determined the lambs to be given away and determined on which huts the comrades were allowed to keep a fixed number of sheep. Another form was meanness. This was understood to mean areas owned by the community for joint paddock or herding. The right of use was often shared by several communities and can be traced back to the common mark. These commons (vulgarities) were only dissolved in the Rhön in the 1870s (Beier, H. 1984: 21f) By the early 1900s, sheep were mainly kept on community, cooperative and, in some areas, transhumance farms. In 1913, there were 56 community shepherds and 256 cooperative herds in Hesse-Nassau (Beier, H. 1984: 22ff).

Lüneburger Heide (Lower Saxony)

Lüneburger Heide is one of the oldest and the largest heath region in Germany shaped by men since Neolithic through clear cutting followed by grazing. The historic heath farming system was a sophisticated and sustainable system of nutrient extraction and nutrient enrichment. Due to the nutrient-poor soils in the heath area, the few available nutrients of a large area had to be concentrated on relatively small fields so that grain could grow there at all. Since the Middle Ages, this has been perfected by the regular removal of topsoil (soda) on heathland, which was used as bedding for the Heidschnucke (special heathland sheep) stables. This was then - enriched with the faeces and urine of the sheep - applied to the fields as fertilizer. In the 18th century, the heathland had its largest extend, however, honey and wool did not continue to bring good benefit, potato production started on the same soils, which led through their denitrification. End of 19th century, reforestation took place. 1909, first heathlands were protected by law. Today, transhumance is practiced, very much driven for touristic reasons and as landscape management, in order to keep the land open.

Wildberger Heathland (North Rhine-Westfalia), 440m NN

This heathland was created during the mining period. The goats and sheep of the Wildberger families were rounded up by a shepherd and grazed the area. A heath landscape with individual groups of junipers developed. Today, the juniper is supplanting almost the entire heathland, which makes it clear how important regular grazing is even these days. The Oberberg Biological Station takes care of the preservation of the juniper heath, its grazing and, if necessary, clearing of the bushes.

District Lippe, North-East of North Rhine-Westfalia

As the old saying goes, the goat was the little man's cow. It was the same in the town of Lügde, where almost every household kept a goat for milk, butter and cheese. Before the great city fire of 1797, 400 goats were counted. Goats were particularly suitable for grazing on the steep, rather dry slopes around Lügde, which were overgrown with hedges and bushes and had little agricultural yield. The term Hutung (common) is still used today as a type of use in the official real estate cadastre. The daily goat drive took place together. Every morning the animals were called with the help of a horn blowing and brought to the pastures by the Lügder goatherd. In the evening, he led them back to the marketplace and handed them over to their owners or they found their way home on their own.

In the course of the introduction of regulated forestry, goat husbandry was actually banned as early as the 18th century, since goats in particular prevented the emergence of young trees. However, despite repeated orders, the ban could not be enforced because many people were dependent on keeping goats, as documented in the state regulations of the County of Lippe (3rd volume, 1789, p. 334). From the middle of the 19th century, goat herding was limited to open areas, while it was definitely no longer practiced in the forest. In later times, the goats were mainly guarded by women and children, as evidenced by photos from the 20th century. The goat farming in Lügde was only slowly abandoned after 1956. Today, a goat fountain remembers to the profession of the goat's

herdsman and the importance of goats at all. The monument was designed in bronze by Bernd Maro from Wunstorf and inaugurated on May 9, 2015 (see Figure 7).

This short description of different German transhumance areas based on local description [http1, http5, http6, http7, http12) show that transhumance was practised in more or less in each Federal State, even if meaning and extend varied.

2.2 Extend in number of farms, hectares of land and number of animals

According to data from the German Office for Statistics the total area for farming in 2021 is 16,60 Millions of Hectares managed by almost 260,000 farm holdings [http8) in various legal forms.

In this report, it was not possible to get numbers of the share of agricultural land used for transhumance, neither for the number of animals involved in transhumance in Germany. Transhumance farmers are not a separate category in the statistical data as it is a real niche of the whole farming sector. Many forms of practical farms identified during the work on this report appeared to be some mixture in-between seasonal farming and transhumance farming.

The lack of definition and the small number of transhumant farmers is one of the reasons why they are not included as a separate category in the numerous statistical data, official databases and reports on livestock and farms in Germany (see Table 1, Figure 5). In order to estimate their numbers and contribution, the available statistical data would have to be cross-checked with information from government research centers, state-level reports, scientific studies, books written by shepherds, books and journals on sheep farming, as well as information from non-governmental organizations and the itinerant shepherds themselves. This was all the more difficult because the different databases - if any - are based on different recording systems. Consequently, their data do not necessarily match. The HIT database, [<https://www.hi-tier.de>) managed by the federal government, documents all animals individually and tracks their movements, the animal disease registries of the federal states record livestock on specific cut-off dates, and the statistical offices only record farms with more than 10 cattle or 20 sheep. Furthermore, the links and data exchange between the different offices are often unclear or missing.

As it was neither possible to receive a full picture of share of agricultural land used for transhumance farming nor to detect a full picture of animals kept within transhumance farming on a national level, this report will focus on various transhumance farming examples.

Table 1: Data source on German pastoralism, taken from Czerkus, G. et al. 2020, p. 5

Data sources on German pastoralists

Institution	Parameters	Area covered	Years covered, frequency	Accessibility
Federal Statistics Office (Destatis)	Agricultural and livestock data	 National	Some data regularly, some annual	Genesis database and annual year books, online accessible. www-genesis.destatis.de/genesis/online
Federal Statistics Office (Destatis): Farm structure surveys	Holdings with more than 5 ha, more than 10 cattle or 20 sheep or goats	 National, sample of ca. 80,000 farms	2016, every 4 years	BLE (2019)
HI-Tier Database	All ruminants, pigs and equids and their movements	 National	Continuous	Data accessible for food security and veterinary controllers, other uses unclear. www.hi-tier.de
Eurostat (gets its data from EU members states)	Numbers of livestock and production	 EU member countries	Annual	ec.europa.eu/eurostat/de/data/database
Federal Office of Consumer Protection and Food Safety	Enterprises that process and trade livestock products	 National	Regular updates?	apps2.bvl.bund.de/bltu/app/process/bvl-bt-p_yeroeffentlichung?execution=e1s3
Livestock insurance funds 'Tierseuchenkassen'	Numbers of the most important livestock species at a specific date	 State	Annual	Form the basis of compensation payments and disease control, not publicly accessible
14 State-level statistical offices	Varies between states	 State	Unclear	Unclear
Ministry of Rural Areas and Consumer Protection, Baden-Württemberg	Economic analysis, sheep enterprises with ≥ 400 ewes, participation costs ca. €250	 State, Baden-Württemberg and Bavaria	Every 3–4 years	"Sheep reports", summaries maybe online, full reports against fee. el.landwirtschaft-bw.de/pb/Lde/Startseite/Unsere+Themen/Schafreport
State-level ministries of participating states	Economic analysis of book-keeping results	 Participating States (sample of 63 holdings in 8 states in 2016/17)	Annual	LFULG (2018)
Various authors and institutions	Aspects of pastoralism and environment	 Depends on individual study		Published studies, reports and other grey literature, partially online

 National level
  Sub-national level
  Individual study

The background to difficult unsharpness in interpretation is, among other things, a partly unclear use and different classifications of land in Germany. For instance, Alpine pastures and alps are usually not cadastral areas with uniform use, but often entire landscapes. For example, the land basis of alpine pasture and alpine farming is not only the well-grown to lean pasture areas, but also mown areas in the flat terrain close to the huts, the so-called alpine pastures. Not to be forgotten are the alpine forests on own land and the forest pastures on mostly state-owned land. This leads us to another difficulty when it comes to transhumance land: It is often a mixture of properties, in most cases so called common land. However, the common land might be owned by a village community, a parish, or the state (of different levels). This is true for plains as well as for mountains. In the Alps, the grazing rights area usually also contains alpine wasteland, which botanists, zoologists and many mountain tourists by no means find inferior, but very interesting. The same applies to "Krummholz" (i.e. mountain pine and green alder bushes), alpine rose scrub, springs and rivulets, mountain streams and mountain lakes. For example, 26 of the 31 high altitude lakes in the Bavarian Alps are located in the alpine pasture area. The infrastructure of the alpine pasture or alp includes buildings and stables, livestock shelters, fences, paths, freight lifts, drinking troughs, water and energy supply facilities, and on alpine pastures/alps with regular stabling also storage facilities for farm manure (STMELF; 2010; p.9).

The largest area used by transhumant farming seems to be the Alpine Region, but there are other regions as well. For instance, transhumance systems represent 20 to 30 % of the sheep population of the Baden-Württemberg region. According to the available sources from **2004** (Bunce; 2004), 100 to 120 shepherds accompany more than 70,000 to 90,000 sheep during summer in Baden-Württemberg in the south of Germany. Animal numbers in transhumance for whole Germany are estimated to be 50,000 cattle and 115,000 sheep (Bunce, 2004, p. 138f).

For Bavaria, for Alms & Alps the following data was gathered and excellently compiled for **2008** (see also Table 2, Figure 2, Figure 3):

- 1 388 alpine pastures/alpine meadows. These range in altitude from approx. 600 m (e.g. at Königssee) to approx. 2,400 m (e.g. at Linkerskopf in the Allgäu).
- In the Allgäu, alpine areas cover almost half of the mountain area.
- The proportion of owned and entitled alpine pastures is higher in Upper Bavaria than in other Alpine countries: 66 % owned alpine pastures and 21 % entitled alpine pastures contrast with 9 % cooperative alpine pastures and 4 % state-owned alpine pastures. This differentiation between “to own” and “to entitle” might be specifically German, however it is based on very old and traditional rights with many specific, sometimes only regional terms, like “Rechtlerwald” which means a forest in which each citizen has the right to take away a certain share of wood out of the municipality or state forest. We find similar rights on transhumance grazing commons (Kratzwald, B. 2016, Helfrich S. et al. 2011, Table 2 Table 2: Types of seasonal farms in the Bavarian Alps (Alm) with economic figures (Source: STMELF 2010, p. 63, translated by Kruse/Dreer)).
- Cooperative pastures/alpine pastures are concentrated in the Allgäu (especially east of the Iller) and the Werdenfelser Land in Upper Bavaria. 50,000 cattle, 3,360 sheep and about 1,000 horses are summered; (“gesömmert”, which means that the flock is there in summer). This corresponds to 3 % of the summered cattle of the European Alpine arc (in total about 1.7 million cattle) (STMELF; 2010; p 10f.).

As data is from 2004 or 2008 it must be mentioned that this can of course have changed considerably within 15-20 years if we consider generational and structural change in farming over all.

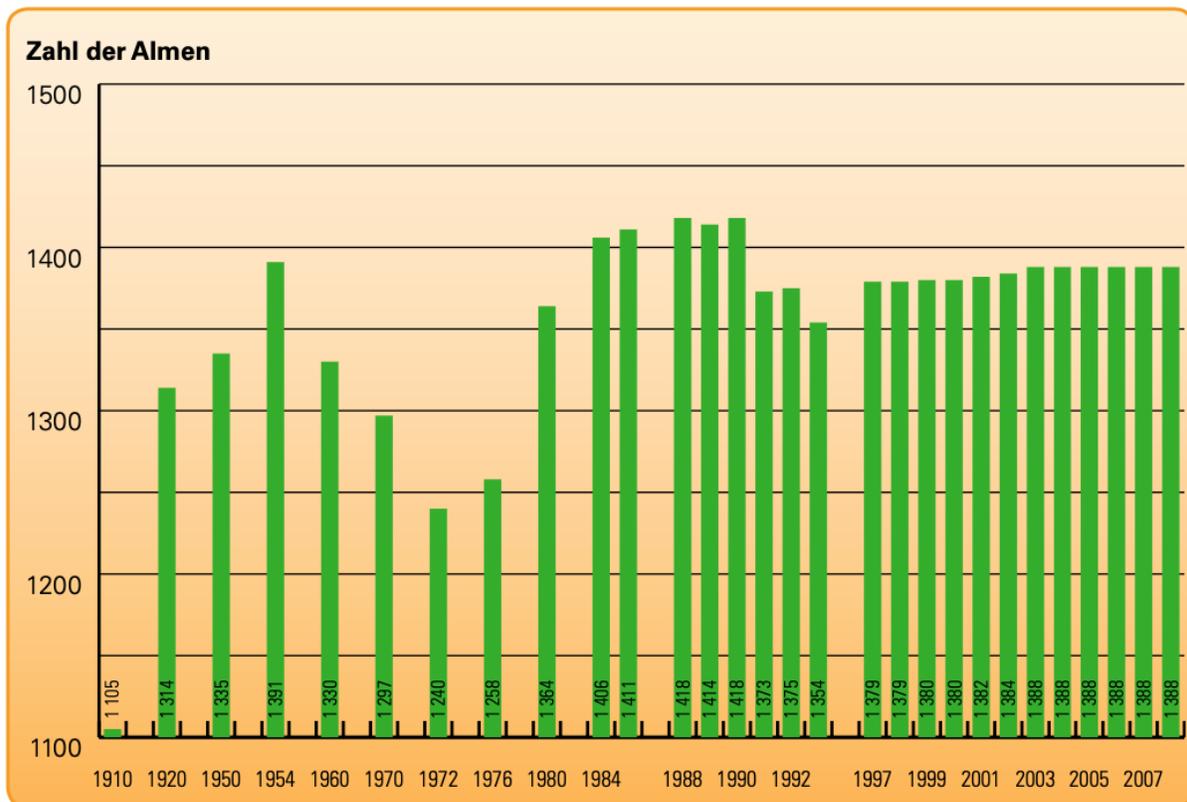
In the mountain area, private owned alpine pastures/alpine meadows have on average the smallest area (often only 10 to 20 hectares of pure pasture) and on the same time the highest intensity of use, which means for instance higher density of animals on the field (see Table 2). Individual alpine pastures implement various and different approaches and therefor can be find in diverse types of landscape. They can be individual forest clearings (e.g. Schliersee-Tegernsee Flysch Pre-Alps) or embedded in the intensive grassland areas of the Alpine foothills (e.g. Kemptener Vorberge, Westallgäu).

It is interesting to see how stable the number of seasonal farms is (see Figure 1). Current numbers are at the same level as during the 1950s, which is rather uncommon compared to other countries. Moreover, there was a peak in the 1950s - in other countries the 'high time' of transhumance occurs much earlier. Without further research, we cannot give a final explanation to the fact. However, the

first idea which comes into ones mind is the strong connection with tourism. Bavarian seasonal farms very often consists since long already of a multifunctional farming: agriculture and tourism..

Cooperative alpine pastures/alps form approx. 13 % of all alpine pastures/alps (German, Austrian and Switzerland Alps) The large cooperative alps in the region of Allgäu are on average about five times larger than the Allgäu private alps. They contain considerable proportions (often more than half) of non-grazable or poorly grazable sites with high biotope value ("Öd- und Unland"). With all cooperative forms of pasture, there is a very considerable need for rationalization and potential in further efficiency (STMELF; 2010; p.63). There is potential in further cooperation of the farms and farmers and along added value chain as well.

Figure 1: Number of Alms in Bavaria 1910 – 2007 (Source: STMELF 2010: 48)



Next to the private and cooperative alpine pastures, we have the following forms:

- are leased pastures
- state-owned land
- non-agricultural private land ownership (see Table 2).

There are no authorised pastures on mostly state-owned land in the Allgäu and they are particularly widespread in the Walchensee mountains, Chiemgau and Berchtesgaden Alps. Typical for the entitlement mountain pastures are often large areas of mixed forest-pasture landscapes.

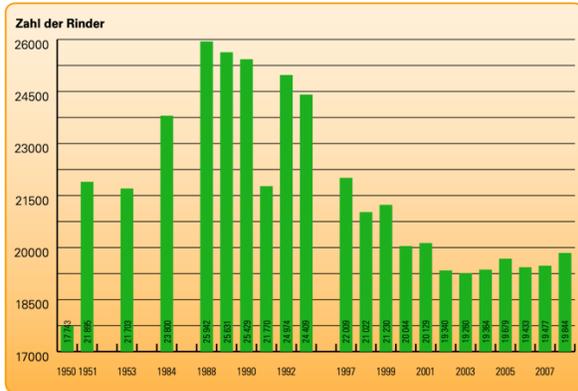
Table 2: Types of seasonal farms in the Bavarian Alps (Alm) with economic figures (Source: STMELF 2010, p. 63, translated by Kruse/Dreer)

Typ of Seasonal farm	Overall land belonging to the alm (average) ha	Grazing area (average) %	Grazing units/100 ha alm (per 100 ha grazing land)	Area/cattle (Grazing area/cattle)
Entitlement alm	130	27	1,4 (4,4)	7,3 ha/GU*(1,9 ha/GU)
Cooperative alm	344	49	0,8 (1,6)	3,0 ha/GU*(1,5 ha/GU)
Rental alm	56	81	3,0 (3,7)	1,8 ha/GU*(1,4 ha/GU)
Private alm	45	71	0,6 (0,9)	0,7 ha/GU*(0,5 ha/GU)

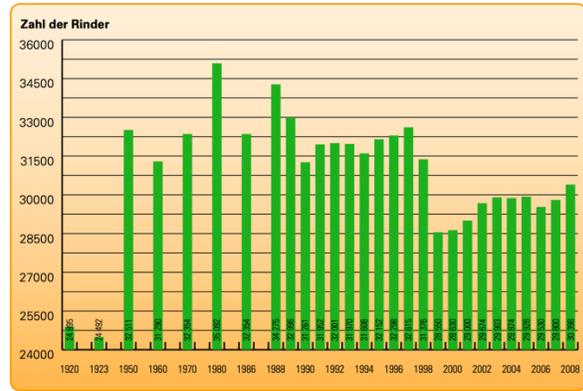
*Grazing unit = cattle)

Table 2 gives a first introduction into the variety how land is defined in many different ways and used accordingly in Germany: as a commodity, as private property, as a spiritual entity, as free investment-worthy land, as capital, community heritage and as commons. Mobile livestock farming in the alpine regions of Germany is characterized by collective land use strategies and communal ownership. This is symbolically illustrated in the fact that the word Allmende etymologically refers to the concept of common pasture. "Allmende" refers to the pasture that is common property of the respective place. The aspects of collectivity are also central to the concept of commons. Since the term is tied to communities, it does not refer to resources per se - initially water, land, forests and the like, increasingly also language and cultural techniques - but rather to their association with specific forms of social agreements in the collective use of them. Common goods only come into being when communities of users negotiate rules of access and use that serve everyone (Blau; 2018; p.305).

In Bavarian law, itinerant pastoralism is characterized by an understanding of land as a common good and is linked to a wide variety of rules and regulations. This can also be derived from the history of the term, as the word "Rechtler" refers to a village-member with the right to graze. It derives from the organizational principle of assigning a certain number of grazing rights to different grazing areas and persons. The Rechtler were and are therefore a collective of people with common rights of use. An important aspect of commons in the Alps is "taking care", including "taking care that a commons is not overused" (Kratzwald 2016).

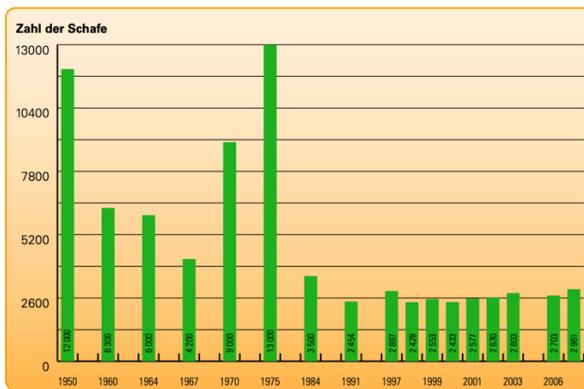


Grafik 7: Rinderauftrieb auf die oberbayerischen Almen (1950 – 2008)

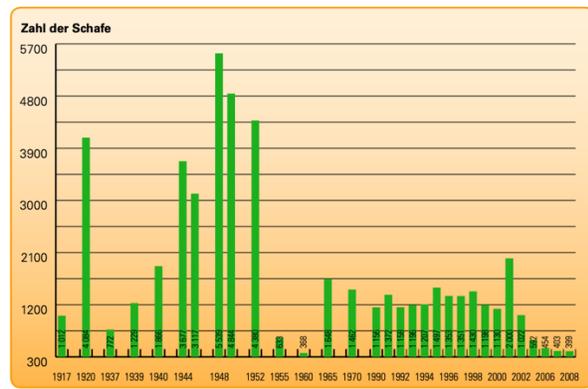


Grafik 8: Rinderauftrieb auf die allgäuer Alpen (1920 – 2008)

Figure 2: Number of Cattle herded up the mountains in Upper Bavaria 1950-2007 (left) and Allgäu region 1920-2008 (right) (Source: STMELF 2010, p. 56f)



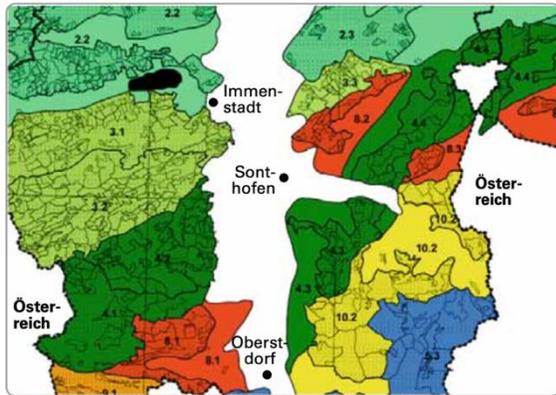
Grafik 14: Schafauftrieb in Oberbayern 1950 – 2008



Grafik 13: Schafauftrieb im Allgäu 1917 – 2008

Figure 3: Number of sheep herded up the mountains in Upper Bavaria 1950-2006 (left) and Allgäu region 1917-2008 (right) (Source: STMELF 2010, p. 61)

The geological zones, which are very different in terms of alpine farming, are shown as an example in the following figure (Figure 4). Fine lines show the individual alpine areas or the individual Alps. To the left of the river Iller (running from south to north through Sonthofen and Kempten - see white area of the river valley in the middle of figure 4), the very fine mesh network of the numerous private alps is striking. To the right of the Iller, the alp network becomes more wide-meshed (large cooperative alps).



blue: Allgäu Jura grass mountains
 yellow: Dolomite High Alps
 red: Helvetic limestone mountains
 dark green: Flysch Middle Mountain area
 yellow-green: Nagelfluh ranges [http10]
 light green: Land alpine region of the Vorlandmolasse [http11]

Figure 4: Connection between ownership structure and geological zonation in the Bavarian Alps (Source: STMELF 2010, p. 27, legend: Dreer)

The foregoing figures and descriptions show that the situation in Germany is heterogeneous and that no country-wide statistics are available. However, we can say that transhumance existed and still does exist all over Germany (see Figure 5, Figure 6, Figure 7). The authors hope that a first impression of the transhumance situation could be given – unfortunately not covering whole Germany but with a special focus on the Alps as here good data are available. This can be explained with the fact that special funding schemes do exist, which do not exist in the other parts of Germany and with the economic importance, transhumance has in Southern Germany, compared to the other regions in Germany, where the economic meaning is marginal.

In order to summarise the today situation of a transhumant shepherd "We can only survive as long as we get the public funds. These are simply different funding measures, so I resist subsidies, but they are simply compensation payments that I get. Partly also for services, i.e. what goes into the care sector and the other funds are simply the funds that we get compensated for by the EU." Harald Höfels, shepherd, in an interview [http4].

2.3 Kind of transhumance & Impressions

There are different forms of transhumant farming in Germany (see also Figure 5, Figure 7).

1. Vertical transhumance is typically found in mountainous, hilly ecosystems. It is better known under the German term "Almwirtschaft" (Ringler, A. 2010). In these upland-lowland systems, herds are moved between fixed points at different altitudes according to seasonal cycles to take advantage of the grazing areas available at different times of the year. Herds are usually driven for long periods of time and long distances, making it impossible to return to the home farm during certain cycles; during these periods, herders live near their herd in a hut or seasonal farm, or travel regularly between their remote farm and these grazing areas to check on their animals. Almwirtschaft is commonly combined with milk and cheese production and often also with tourism on farms. Main animal is cattle, followed by sheep.

2. Horizontal transhumant farming can be found in various plain areas and middle-mountains: coastal dike areas, salt marsh, marshland, Hohe Warte, Lippe district, Lusatia, Brandenburg, Lüneburg Heath as well as along the Green Belt (former inner German border complex). Within these horizontal ways of transhumance, the main animal is sheep.
3. Winter transhumance: There are several areas in Southern Germany, especially The Kaiserstuhl and the Swabian Alb, but also close to the Lake Constance, where the climate is mild. Traditionally, herds had been brought to these grazing grounds in winter.
4. Last but not least, there are two forms which might be considered as sub-types of horizontal transhumance:
 - a) Dyke management where herds of sheep are maintaining or managing the grass and keeping the dykes free of scrub encroachment
 - b) Land management in protected areas

Regarding the flock, this grazing can be considered as transhumance as they are moving forward in comparatively large areas. On the other hand, they are not accompanied permanently by herders, only punctual. Their main task is keeping grass short and the landscape open, while production of milk, meat or wool is secondary if at all. The animals used in protected areas represents a large number of species, due to many different site conditions.



Figure 5: Overview on location and type of transhumance in Germany. Adapted from Czerkus, G. et al. 2020 p. 2

All in all, transhumance farmers in Germany are a tiny minority, representing only 1% or less of the farmers and less than 0.01% of the population. Exactly how many there are is difficult to assess, as the boundaries between the different systems and types of grazing, transhumance or extensive farming are blurred and the Germany-wide statistics do not cover extensive farming systems (Czerkus et al; 2020; p.1, Figure 6).

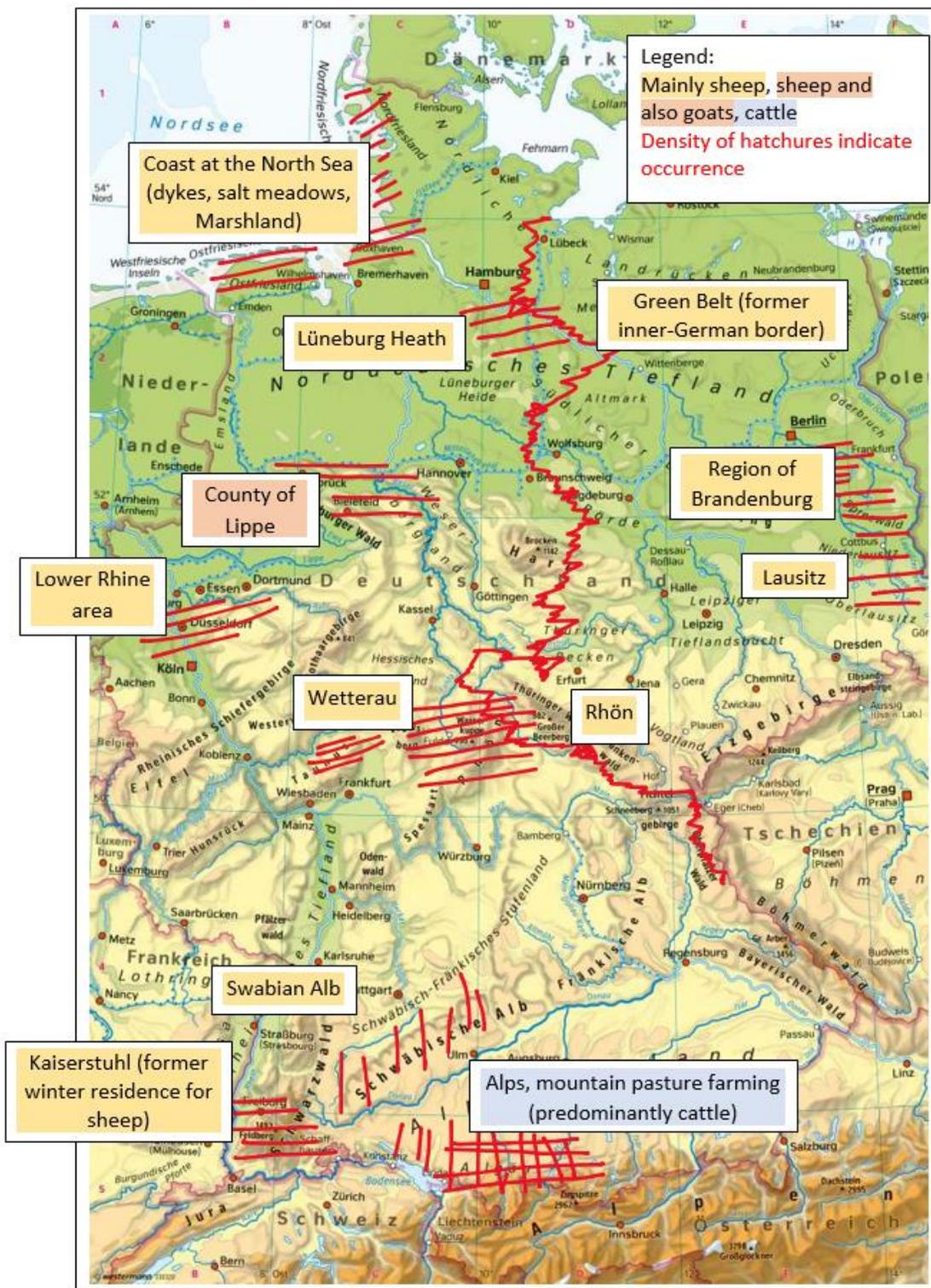


Figure 6: Visualisation of the most important transhumance areas in Germany (by Dreer/Kruse, based on map of Diercke-Westermann <http://www.diercke.com>)

Transhumant farmers mostly keep landraces or local breeds. They also use some economic breeds such as the black-headed meat sheep, found in northern areas, and the Merino, the most important breed in the south. The harsher the terrain, the harder and better adapted the breeds have to be. Examples of sheep are the Coburger Fuchsschaf, Rhönschaf, Heidschnucke and Bergschaf. The indigenous goat breeds include the Thuringian Forest goat. Among the cattle, the dual-purpose breed Fleckvieh dominates. The alpine dairymen also keep brown cattle and a number of endangered breeds.

The main purpose of the transhumant animal-keeping from a product perspective is meat, milk and wool. Unfortunately, it is very difficult to capture the value of the environmental services and positive externalities, like keeping the countryside open, biodiversity, maintaining the cultural landscape, maintaining traditions in land management and life in the countryside.

There is a remarkable impact of and to commons. The great attraction of commons is at the same time the reason for its invisibility. Commoning appeals to us to see the world from a fundamentally different perspective; the self emerges from and exists only because of relationships with others.

"Failure to recognize a 'we' and its complex dynamics is tantamount to living on earth without an atmosphere. Our lives are framed and defined by a 'we'. Collectives are therefore not just a sum of individuals, but distinct organizational systems based on shared meetings and commitments."
(Helfrich & Bollier: 2011).

2.4 Impressions



Heathland, commons, created by sheep and goats grazing. Hohe Warte 325m NN, district Lippe, A. Kruse, 2021



This sculpture of a herdsman reminds at the importance, goats had in district Lippe (see also 2), A. Kruse 2021



Commons in District Wetterau, close to the shepherd's village Hungen, today managed either with sheep, horses or cattle. A. Kruse, 2022, see [http13-16].



Transhumance pastures in District Wetterau are often characterised by slopes and mixt use as orchards. A. Kruse, 2022



Sheep are use all over Germany in order to maintain dyke and river plains. Elbe Biosphere Preserve, A. Kruse 2021



Lüneburger Heath is maybe the most iconic transhumance landscape in Germany. A. Kruse, 2005, see [http17-18].



Cattle in the alps;
(http29)



Vihschied in Immenstadt, bringing down the cattle to the valley (http 30)

2.5 Purpose and motivation of transhumance

Alpine pastures/alpine meadows were created exclusively to secure the livelihood and food supply of the mountain population. Today, however, their non-agricultural functions - attraction of tourists, providing leisure space and biodiversity, maintaining the cultural landscape, maintaining traditions in land management and life in the countryside - are at least of equal importance to their forage-growing and animal breeding significance. An alpine pasture manager is not only a producing farmer, but also a designer of a highly sensitive landscape. The respective areas serve as a unique habitat for numerous wild plant and animal species. The maintenance and preservation of the areas can be understood as part of multifunctional agriculture. Generally speaking, there are many studies underlining the over-average meaning of transhumance landscapes in terms of biodiversity (u.a. Deutscher Bundestag 2019, Gerken, B. et al. 2000, Plachter, H. et al. 2010).

The remuneration of these positive externalities is just as crucial for the existence of farmers as the actual agricultural product market. It is certainly challenging to find the right measure here, as long as one is talking about subsidy or public support.

Even if German percentage of High Nature Value (HNV) farmland is low, it is for sure remarkable and attracts lot of interest. According to Paracchini et al. (2008), The HNV farmland in the EU incorporate over 74 Mio ha, which is 31,9 % of all farmland. The highest share can be found in Spain (55,8% of all Spanish farmland), while Germany in 2008 had the lowest percentage (14,6), corresponding of appr. 3100 ha.

Farms have opted and still opt for transhumance, not only to maintain a traditional mode of production, but rather as a strategy to adapt to changing circumstances in society, environment and on the single farms and in the cooperatives. Access to land has always been very difficult, and land was bought at any altitude where it was available and affordable. This was not only a growth strategy, but also always linked to looking ahead to the next generation. Nowadays, access to agricultural land is still very difficult, and redrawing agricultural boundaries in small areas where structures have developed over decades or even centuries is extremely complicated. Many people are very attached to their farms and way of life. At the same time many would rather reduce the number of settlements if access to the upper floors were made easier. Most of them also adapt transhumance to their family situation and emphasize their flexibility.

2.6 Available knowledge about transhumance

There seems to be a - typical - gap between research and its perception in practice among farmers. Economic decisions are taken, farming concepts are implemented and farms are managed in various ways without thinking about how this farming system would be called (by experts) and what

aspects of sustainability, multifunctionality and what positive or negative external effects are linked to the specific farming action.

More practical seem to be the terms of rural development, landscape or nature protection, for which definitions, literature and administrative responsibilities do exist.

The missing data availability (see above sections) corresponds with non-existing or with non-specifically ways of forming and securing knowledge.

Farms are handed over from generation to generation, accompanied by basic VET as a farmer with only minor chance of specifying on niche ways of farming in this VET.

As already mentioned above, transhumance is a niche of whole farming sector. In some federal states data and more detailed information is available on either local, regional or federal state's level.

There are very few agricultural schools which offer training/education on transhumance, e.g. in Bavaria and Saxony-Anhalt, while one of the most reputable shepherd's schools was closed a few years ago (see beginning of chapter 2) [http4]. There are several professional's associations for shepherds and transhumance practitioners, often organised on regional or federal state's level (e.g.). As an umbrella organisation we can mention German Association of Professional Shepherds.

Last but not least, there are non-profitable associations that deals with the history of transhumance or other detail aspects, e.g. the history of one special estate sheep farming. Here again, most act locally [e.g. http1, http2].

Hungen, a little village in the district Wetterau of not even 13.000 inhabitants, has the epithet shepherd's village. Every two years a shepherd's festival is organised, there is also a museum about the local transhumance. One distinctive landscape type in the district Wetterau are the so called Hutungen. These are village commons with oligotrophic vegetation, on basalt. Today these commons are maintained within different regimes for their high biodiversity value [http13-http15]. A nature trail along several municipalities explains about the life of shepherds, the flock, cultural and natural values [http16].

Some of the work done by researchers and by administration is mentioned in the references of this report (e.g. Beier, H. 1984, Beinlich, B. 1995).

2.7 Awareness about transhumance

The authors have not found scientific research dealing with the awareness about transhumance. In Germany, especially in urban centres, most people are unaware of the existence and importance of transhumance. The term as such does not exist in Germany and the German translation of "Wanderweidewirtschaft" seems more a technical term than an everyday word. On the other hand,

the landscapes that had been created by the transhumance activity are well-known and famous as leisure and holiday landscapes [http17-http18]. Same is true in the Alps: People might never link the term transhumance to the mountain agriculture practiced today still in a very traditional way. However, most people know Alms (seasonal farms) and are aware of the fact that cattle are brought up and down in order to produce milk and cheese during summer in the mountains and stay over winter in the valleys. These alms are very famous for holiday and leisure.

It would be very interesting to make a public inquiry about the public awareness of the fact that the “Southern German transhumance” was inscribed in 2020 in the list of immaterial cultural heritage of UNESCO [http3].

The significant role of transhumance in maintaining of the cultural landscape is recognised by that part of urban society that hikes, cycles, walks and spends time near the environment in their leisure time. The importance and extraordinary role of transhumance farming and transhumance landscapes for biodiversity are well researched (Bunce, R.G.H. et al. 2004, Deutscher Bundestag, 2019, Gerken, B. et al. 2000, Plachter, H. et al. 2010). Funding programs do exist on different administration level (STMELF 2010).

Raising public awareness of the critical and crucial role of transhumance in landscape and environmental conservation and biodiversity will provide additional tools for marketing their products, to extend the share in the whole value chain, and, to some extent, make transhumance farmers proud of their contribution to environmental protection, which will strengthen their willingness to continue their work.

2.8 Legal and funding situation

Germany uses and manages the funds allocated to it under the CAP. Current EU policy officially advocates low-intensity transhumance as a source of environmental, economic and cultural benefits. The EU provides general guidelines, which in Germany - due to the federal system of the federal states - are implemented in different ways depending on the Federal State or region, some of which are more favourable to transhumance than others.

In Bavaria, for example, farmers have the option - in addition to the basic direct payments per hectare from the first pillar - to choose between KULAP (Bavarian Cultural Landscape Programme, [http19]) and VNP (Contractual Nature Conservation Programme, [http20]). These two programmes are embedded in the second pillar of the CAP in Axis 2, which aims to improve the environment and landscape by focusing on biodiversity, HNV agriculture, water resources and climate change. This includes agri-environmental programmes such as VNP or KULAP in the case of Bavaria. The programmes offer a wide range of options that can be selected depending on the type of land and use.

In addition to management, the KULAP also promotes necessary and appropriate investment measures in the field of alpine pasture management:

- Mowing of steep slope meadows
- Shepherding of recognised alpine pastures and alps. This award shall secure that the necessary staff at seasonal farms will be secured.
- Summer grazing for cattle: grazing premium
- Grassland extensification
- Construction of buildings
- Creation and renewal of paths
- Procurement of special machinery

As transhumance is not explicitly mentioned in the CAP, it can be classified as a provider of ecosystem services to be covered under Pillar 2.

However, despite the official support of the EU/CAP and national and regional policies for pastoralism and transhumance, it is the case that a large part of EU funding goes to intensive agriculture and not to extensive livestock production.

Apart from this, many regional funding schemes exist within landscape management concepts for protected areas, both nature and culture sites, as well as cultural landscape protection as such. However, there is no higher-ranking organising body.

2.9 VET offers for transhumance practitioners and training gaps

There is not a formal, organized VET program for transhumance practitioners in Germany. Traditionally, the “How To” and the characteristics and difficulties of the profession were passed from generation to generation from experienced farmers to newcomers.

In farming over all there are more and more private initiatives and speakers which are addressing quality of soil, sustainable land use and as well the positive effects of animal keeping on grasslands and even croplands. As described in chapter 2.6, there are a few agricultural schools which offer training for transhumance practitioners.

You get passionate or not and depending on this you become a transhumance farmer or not. You would have your basic VET as a farmer and then go on with experiences on your own farm, with your own specifics and your own Plus and Minus of the location, the animals, the plants, the seasons, etc.

Speaking of knowledge about traditional and innovative ways, methods and techniques of transhumance, pastoralism, extensive farming there can be seen a lot of potential and need in VET-offers addressing:

- deeper understanding of multifunctional agriculture
 - basic training for an entrepreneurial transhumance
 - exchange of practitioners on local, regional and especially and as well international level
- to extend the degree of innovation and implementation of innovation – not to enter another level of industrialization or pure technologization, but to take a look to efficiency as well as to the whole value chain of transhumance embedded in a complex environment and complex society.

3. History

Transhumance farming is based on the concept of bringing animals to forage and thus live and work at different areas respectively locations. It represents a way of life that has evolved and changed over generations. Nevertheless, the main goal of transhumance is to earn a living as a farmer. High pasture farming, market cooperatives including early forms of commons have been practiced in Germany since approximately 5000 years. Migratory sheep farming in Germany has a history of adaptability. It existed in various Alpine valleys since thousands of years and has persisted and evolved until today. According to [http1], sheep came to Germany approximately 6500 years ago. The so called wool sheep had been introduced approximately 4000 years ago [http2]. In Middel-Europe, Wool became the most important textile fibre from the 2nd millennium onwards. Since that time, the focus for sheep has been on wool and milk production. The animals were bred for that purpose. In the following centuries sheep farming played with its products (wool, milk, meat) in single sheep farming and on commons an important role in the context of the peasant's self-sufficiency. The particular importance of sheep farming was that it allowed the use of very steep, shallow, dry or remote areas where other agricultural use was out of the question [http2].

Middle Ages until 19th century

Regarding farming practice: the so called three-crop-rotation was the dominant farming type in Germany in the early Middle Ages. From the high Middle Ages, wool became very important. First, the monasteries, then the craftsmen in the flourishing cities helped people to dress appropriately. Spinning, weaving, dyeing and felting of ever better quality determined the economic life of entire towns, e.g. Augsburg in Bavaria and regions for centuries. E.g. stuff trading company in Calw (Baden-Württemberg) from 1650 to 1797, which employed 5-6000 spinners and weavers in some decades. The city was the most important financial and trading center in the Duchy of Württemberg at that time [http1].

Inspired by Martin Luther's publication "From the freedom of a Christian" in 1520, from 1524 to 1526, peasants went to war against the nobility. They demanded more rights and the abolition of serfdom. The attempt was to end in a bloody fiasco.

In 1786, on the orders of Duke Carl Eugen, two shepherds with a small herd of 106 fine wool merinos migrated from Segovia in Spain to Justingen in the Swabian Jura. They were on the road for four months. These animals were at the beginning of the breeding of the today Merinoland sheep. From the late 19th century to the First World War, German shepherds undertook long journey to the French markets [[http1](#)].

An interesting record does exist from Northern Bavaria about the seigniorial state shepherd's farm in Ahorn with permanent winter stables, which has existed since the 15th century. This was not a year-round migratory sheep herd. Part of this site-bound herding system were some buildings that housed the shepherd, his family, the sheep, fodder, and bedding. Usually 500 sheep were overwintered in the sheep farm. In the early 16th century, the "Old Sheep-Stable" was dissolved and sold. However, it was rebuilt in 1713. Renovation work followed from 1964 to 1972 and from 1995 to 1997.

The shepherd die-off in the Coburg region began in 1867 (peak: 23,000 sheep). In 1912 there were already fewer than 3,000 sheep. This decline was so drastic that the shepherds in the Coburg region were operated as part of a very intensive land use under the direction of calculating land and domain owners or tenants. The large shepherds reacted most quickly to the fall in wool prices and usually with a total closure of the business. An important information is that the cooperative sheep farms or community sheep farms continued as a matter of habit because they were less expensive to run.

The shepherd worked on contractual terms. The mutual rights and obligations between the shepherd and the landowner were laid down in so-called "stock letters". The employed shepherd Georg Walter from 1938 to 1953 was a long-serving and unique in his way. He came from the itinerant to the estate shepherd. He bought up wool from the area and sold it to the German wool processing company. In the mid-1950s, the agricultural upheaval of the post-war period brought the definitive end to the Ahorn sheep farm after 500 years of existence. A renovation saved the "Alte Schäferei" from decay and demolition and finally, a museum is operated since the 1970s in the historic buildings (Böhm, M. 2000).

Transhumance sheep farming was of significantly greater importance for economic development in south-west Germany than rural sheep farming [[http2](#)]. In Württemberg, this received a decisive boost in the late Middle Ages, when the sovereigns tried to use the agricultural areas that had been abandoned during the deserted period by grazing sheep again. This included the so-called "trial justice", which granted the state or manorial rulers the right to graze the fields of their tributary subjects with their flocks of sheep. In 1746, the aristocratic sheep farm in south-west Germany came to an end. From than on, sheep farming was run by private shepherds, who continued to migrate

and thus became independent of stables. Transhumance developed in the form as we still find it today. With the progressive population development after the Thirty Years' War and a higher demand for agricultural land, there are increasing disputes about the use of sheep pastures. The pastures were gradually pushed back to the most unfavourable locations, but at the same time they were used as intensively as possible. Despite increasing conflicts of use, sheep farming on the Swabian Jura experienced its heyday in the first half of the 19th century. In the second half of the 19th century, however, the situation deteriorated noticeably, mainly due to the import of cheap wool from Australia. Between 1873 and 1926 the number of sheep in Württemberg fell from 577,000 to 128,000 – a quarter of the original number (BEINLICH 1995: 97ff).

1846/47, following the hunger crisis marked the start of the concept of cooperatives, which is connected mainly to the names of Raiffeisen and Schulze-Delitzsch. The largest number of seasonal farms in use is reported for the 1850s. Generally speaking, this was the time, when agriculture in Germany had its highest intensity. Also former wasteland were cultivated and potatoes were introduced into the crop rotation. Breeding of specialist breeds started.

Development of sheep farming in the 20th century

Sheep numbers in Germany increased during the Third Reich, but reached their all-time low of just 116,000 animals in the mid-1960s. Since then, the number of sheep in Baden-Württemberg has increased again. In 2006, the population in Baden-Württemberg was 315,700 animals in around 4,200 farms. Of these, around 260 are full-time farms for which sheep farming - often in connection with direct marketing - is the main branch of the business. The numbers of animals and farms have stagnated since the turn of the millennium or have been falling slightly since 2002. No major change is forecast for the next few years (RÖSCH, C. et al. 2007).

There was an increasing switch from wool to meat production, which requires a better supply of feed for the sheep, because the nutrient-poor grasslands do not provide enough nutrients for meat production with intensive grazing. Accordingly, the number of migrant shepherds has decreased considerably, while the proportion of holdings with paddock husbandry more than doubled between 1976 and 1986. The herd size has often increased. The predominant breed of sheep in herding in Baden-Württemberg is the Merinoland sheep. Around 90 % of all animals belong to this breed (BEINLICH 1995: 102ff), meanwhile more frequently with Suffolk crossings.

Until long after the Second World War, the still high degree of self-sufficiency of mountain farmers as well as the general crises and food shortages kept the upswing and the utilized alpine pasture area at a high level. In the 1960s, however, there was a slump, which went hand in hand with the definitive end of self-sufficiency farming, which in many cases only began in the Alps around 1960, as well as with the rationalization and capitalisation of agriculture due to the agricultural market, i.e., the concentration on favorable, intensifiable locations, with a simultaneous shortage of agricultural labour. The alpine pasture recession of the 1960s and 1970s brought about a profound structural and utilization change as well as a change in the relationship between alpine pastures and

valley operations. In many cases, milk processing was shifted from the alpine pastures to the valley. Alpine dairy farms/alpine pastures became milk-supplying alpine pastures/alpine pastures or purely young cattle alpine pastures/alpine pastures.

In Baden-Württemberg, only about 1 kg of lamb per capita and year is currently consumed compared to over 40 kg of pork - and even this small amount usually does not come from local sheep farming, but from New Zealand. Increased consumption of local lamb - often sold from the farm or at weekly markets - serves to preserve beautiful landscapes that are valuable from a nature conservation perspective and can also replace meat from less animal-friendly husbandry. The State Sheep Breeding Association of Bavaria (<https://www.bhg-schafzucht.de/>) keeps a list of companies that sell directly.

Many biotope types (e.g. calcareous pastures, heaths) have arisen through centuries of sheep grazing - above all through transhumance. Accordingly, sheep grazing is particularly suitable for preserving these biotope types.

Depending on the breed, sheep are suitable for tending almost all surfaces from level to steep terrain, from dry to wet locations and even for surfaces with the lowest forage yield. Due to the low footfall from sheep grazing, there is hardly any risk of erosion. Special nature conservation goals can be achieved through the possibility of flexible and varying degrees of protection. By using the shovel, the shepherd can contribute to the long-term care by cutting out or chopping off species that he does not like, such as thistle or young wood (LOHRMANN 1956 in SCHUMACHER, MÜNZEL AND RIEMER 1995: 50).

The ecological importance of grazed areas depends to a large extent on the respective design of the grazing management. Even with a site-appropriate grazing system and suitable animal species, the biotope-specific species inventory can be impaired by improper grazing.

4. Values and meaning of transhumance

It is necessary to discuss what transhumance can and wants to achieve under which economic, social, cultural, ecological and political conditions - taking into account the risks and opportunities perceived by transhumance farmers.

Many folkloristic, traditional but also professional aspects and knowledge is linked to transhumance in Germany: shepherds' guilds, shepherd festivals, shepherd saints, songs, medicine, special breeds of famous shepherd dogs. Every region has its own traditional shepherd's clothing.

Since 2020, the Southern German transhumant sheep-farming has been part of the nationwide register of intangible cultural heritage of the German Commission for UNESCO [<http3>].

As already described above, the outstanding biodiversity and outstanding natural beauty of many transhumance landscapes are not evenly distributed over the mountain world and the alpine pastures/alpine regions. They have been created through transhumance and represent therefore a wellknown value (Gerken, B. et al, 2000, Plachter, H. et al. 2010).

The almost 1,400 recognised alpine pastures/alpine regions in Bavaria are of inestimable importance for tourism. The high mountain area, which covers just under 2% of the state's surface area, attracts people from all over Germany. An alpine summer holiday without a visit to an alpine pasture/alpine region is hardly conceivable for most guests. Agriculture and farmland have a very good image. The actual recreational significance of the alpine pasture landscape far exceeds its statistical area share.

One of the best-known Allgäu traditions takes place every year in mid-September: the so-called Viehscheid [http21]. They are not a recent invention; they have been practiced for centuries, and also in other regions than in the Allgäu [http22]. After about 100 days in the mountains, the cattle return to the valley together with the herd's people and are "separated", i.e., returned to their respective owners and return home to their winter stables.

The day before the Viehscheid, the herdspeople gather their cattle at high altitude. The animals are dressed up, the big bells are put on and the lead animal is decorated with a magnificent wreath. The latter, however, is only done if there has been no accident during the summer, for example due to a rock fall, lightning strike or the fall of an animal. It is often adorned with a cross, asking for the protection of the heavens. A mirror to ward off evil spirits also belongs in the wreath. The traditional bringing-down of the livestock gather several thousands of visitors each year [http23].

Guests appreciate a holiday on a mountain farm because of its warm, genuine atmosphere and the contact with a farming family in a unique landscape in intact nature. They experience the down-to-earthiness and the everyday life of a farmer. The enjoyment of home-grown products and regional specialities also round off the culinary experience for the whole family.

In addition, alpine farming is becoming a driving force in the development of regional economic cycles. Several already quite successful regional marketing and quality initiatives are exemplary here [http24, http25]

Also the Lüneburg Heath is a traditional holiday destination, which attracts each year appr. 2 Mio visitors [http26]. The attractiveness is clearly connected to the landscape itself, especially in late summer, during the heath blossom.

May it be a center for regional touristic and gastronomic development or even an UNECSO cultural heritage, transhumant farming has important links to all categories of sustainable regional development, and it may be a key for linking society with farming and the valuable cultural landscape.

The farming families themselves and their way of working and living is exemplary in a world full of theory about sustainability, resilience, organic growth. Possibly this is the most important meaning to be mentioned. Transhumance may lead a way to sustainable transformation in practice.

Last but not least, the special status of the shepherd profession has found expression in Christian symbolism (the good shepherd, the lost sheep) and in shepherd poetry. Many artists have quoted this symbolism in their work, for example Johann Georg Mohr with depictions of shepherds in the Taunus but also Herman Löns (1866-1914), a famous journalist and writer. He was called "the poet of the heath", a reminiscence to his novels and poems celebrating the people and the landscape of the North German moors and heathlands. He was also hunter, natural historian and one of the first German conservationists ([http27](#)).

5. Challenges to face, needs and opportunities

Transhumant shepherds are having a harder time. The available space is becoming less, the bureaucratic effort is high, leasing good pastures throughout the year is difficult, moving large herds is getting very stressful, also due to steadily increasing number of cars and less acceptance among the drivers. If sheep dung is left somewhere on the street today, herds people often having trouble, while just a few decades ago, sheep manure was a popular fertilizer. The lamb price is extraordinary low (see above), German lamb's wool is worth nothing. Therefore, the shepherds must have to develop either alternative ideas to get through [[http4](#)], or more and more shepherds to give up [[http1](#)].

A new opportunity seems to exist in landscape management, especially where cultural landscapes are appreciated or in nature reserves. Oligotrophic grasslands, nutrient-poor but also wet grasslands can only be held open by the help of grazing flock. Therefore, since the end of the 20th century, various flocks of humble species are used in management concepts (Plachter, H. & U. Hampicke 2010, Gerken, B. & M. Görner (eds) (2000).

Like all sectors and other farms and farming systems, transhumance farms have adapted to changing political, economic and environmental conditions. However, precisely because of this adaptability and their specificities, transhumance farmers probably came under increasing pressure especially in mountainous areas. The formerly strong romanticization of mountain farming and the supposed need for support of mountain regions is increasingly being questioned. Political discussions often focus on the precarious financial situation of itinerant farms. This argument is decisive in many cases and must not be trivialized. Farmers' own interpretation of how much money is needed to make a good living may also differ from that of outsiders. In the past, transhumance was seen as part of an optimization strategy and as an opportunity in terms of production, labour and access to land and social life. Thus, transhumance made both economic and social sense for

mountain farmers in the context of controversial perceptions and images about mountains and agriculture.

In the study done by Jurt, C. et al. (2022: 61ff) about transhumance farming in Swiss mountains, the authors mention a network of risks, opportunities and their interconnections. If one compares these individual networks, 3 frequently occurring core risks can be named:

- lack of family members to take over farm work
- high workloads, more than 8 hours a day, “wind and weather”, very few holidays [http4]
- changing of social and cultural values.

These core risks can be seen in German transhumant farming in the Alp region as well. Due to the specific German situation, three others can be identified:

- lack of grazing land, due to land-use concurrence
- due to the German minimum salary of >8,50€, it is difficult to find cheap stuff (from abroad, or students [http4])
- deeply dependant on national and EU-politics, which change more or less often

The risks are interconnected and have strong links to other nodes in the risk networks (see Figure 8). Thus, a change in one of these nodes can lead to crucial changes in other risks and opportunities. It is beyond the scope of this paper to explain the entire risk network in detail. Therefore, the following discussion focuses on the named core risks and key interconnections.

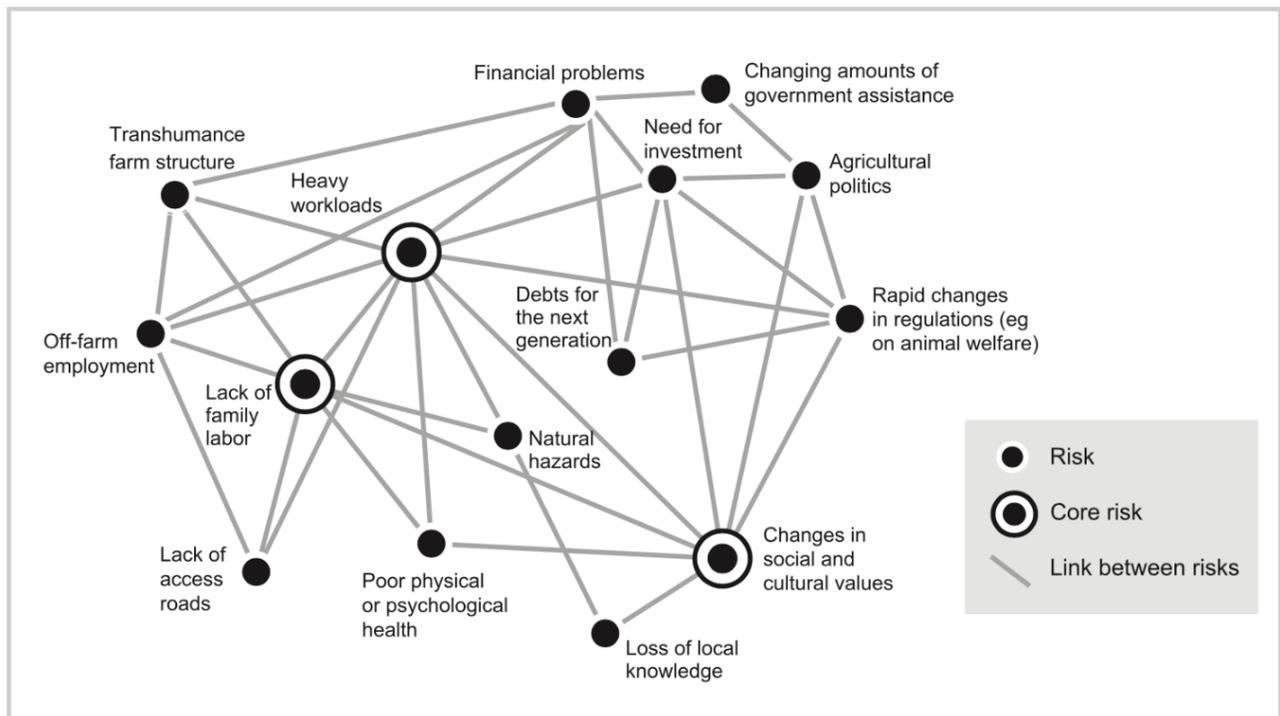
The work of extended family members and friends is particularly important on transhumance farms, as family members and friends are usually not paid with money, and the work requires experience in the field and is too hard for many unaccustomed people. On farms and within farm-families, there still exist many forms of unpaid services, often in exchange throughout the year or capabilities or also machines. If this customs are not maintained, rural enterprises, farms and other will have additional financial challenges.

According to Jurt, C. et al. 2022: 61ff, intergenerational dependencies play an important role. Succession is a challenge that needs to be well designed to achieve a good and stable outcome of the process. Some family farmers with emergencies (lack of labour due to succession failures, fate, hazards, etc.) receive help from volunteers organised by non-governmental organisations. Although this arrangement can help ease the workload, it also requires openness and work to accommodate the volunteers and make their lives comfortable. Changing social and cultural values also affect future farming generations. It is difficult to say whether young people will be less willing to take on transhumance farms given the current workload and financial returns. Members of the younger

generation are also exposed to other strong influences and may not want to return to the farm once they have experienced other realities.

Figure 8: A typical transhumance farm risk network. Source: Jurt, C. et al. 2022: 61

FIGURE 2 A typical transhumance farm risk network. (Figure by Christine Jurt)



Generational Change and Access to Land

The profession of transhumance farmers is often not economically viable. Some transhumance farmers are giving up due to generational change, some due to missing margins. Transhumance farming will survive in being an interesting niche only if entrepreneurs (old and young) are moving forward with open eyes implementing traditional knowledge and skills as well as innovate in farming: managing land, producing, processing, packaging, selling, telling the story about their very valuable work and insisting on a really interesting price rather than hoping to be able to cover cost.

Transhumance farmers bought land when it was available and affordable, keeping in mind the needs of the next generation, and sold it when necessary to meet financial needs or help relatives. It was mostly land that was difficult to work on, steep, and without access to roads. When farmers had too much land to work on themselves or land that was situated unfavourably, they sometimes leased it out. Availability of land and the building up of new transhumance farms has also been influenced by inheritance and family history. Some family members could not inherit land because of their position in the line of heirs (depending on the region, the oldest or the youngest generally inherited the farm).

Climate change

In the next 50 to 100 years, a general temperature increase in the Alpine region, a slight increase in precipitation in winter and a decrease in precipitation in summer as well as a further increase in extreme weather events can be expected.

The possible change in the vegetation to more productivity due to global warming is only apparently an advantage for alpine pasture/alpine farming, because today's high alpine pastures and grass heaths are mostly followed by rocky, boulder- and scree-covered meadows, which are hardly capable of being grazed. As a rule, alpine pastures are tied to "old" soils that are not too shallow. At the same time, the alpine farmers may have to do more work because the timberline is rising. The alpine pasture soils may dry out more in the grazing summer and the natural watering possibilities may decrease. More frequent hazards are also likely to make more clean-up work necessary in the future.

Of fateful importance and closely linked to geological conditions is the water supply of alpine pastures and alps. Despite high annual precipitation, they can suffer from a lack of water, especially in karst areas. Streams that carry water all year round do not always run through the alpine pasture. Often, the farmers have to rely on cisterns and ponds. But even a local water surplus can lead to problems and requires careful water drainage.

6. Conclusions

Taking a look at the data of agricultural land as well as various criteria of farm holdings in Germany such as cropland, grassland or livestock and the legal form it is easy to testify the same steady development as in all European countries: structural change of farms in direction of larger scale as well as less farmers.

Taking this fact for given and proven by data there is still the tendency causing an opposite trend following the laws of trend-dynamics.

From this perspective it is not a surprise that there still exists a niche of transhumance farmers in Germany. Even if there are not yet reliable statistical data, the interviews conducted on purpose of the Transform project have indicated that there is an opposite trend for very innovative forms of transhumanc:

- New herding methods and systems
- New ways of marketing and market access, e.g. guided tours on transhumance land [http2]
- “Spent a day with a herds person” in Lüneburger Heide [http6]
- New ways of cooperation in farming as well as in processing, packaging and selling

There seems to be space for (young) farmers and entrepreneurs to use the spirit of the moment in appreciation of

- well maintained environment and landscape
- cooperation between owners of earth-grounded solar panels and herders
- high quality regional products
- social elements of community or cooperation

Referring to these elements it seems very interesting to take a deeper look not only on the “modern way of transhumant farming” from a technical perspective (producing, processing, selling) but also from a social perspective with a glance on:

- commons
- cooperation
- revival of community

Further studies are needed to assess the role of transhumance for society, e.g., landscape maintenance and/or protection against natural hazards. This would help to recognise the work of family farms engaged in transhumance and open up a public debate on the development of mountain areas that goes beyond economic issues.

It is also underlined the need to systematically collect data on the areas managed in the context of transhumance, as well as their extent and connectivity.

Supporting and fostering entrepreneurial thought, skills and competences seems to make sense for transhumance farmers.

It is not about learning predatory capitalism but sustainable entrepreneurship enabling better financial situations on the farm along with social and ecological embedding.

Overall, one can expect from a purely legal point of view that it will become even more difficult for German transhumance in the future (liability, responsibility, guilt in the event of damage). Therefore, we would like to address in a follow-up project the following question: How can transhumance be promoted further?

7. Literature

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7.1 Links towards transhumance related topics and organisations in Germany

- http1: Verein für Schäfergeschichte e.V. (Association for the history of sheep-farming) with information about the history of sheep transhumance in Germany [accessed: 16.01.2023]:
 - <http://www.schaefergeschichte.de/index.php/vortraege/22-schafe-in-den-30ern> [accessed: 16.01.2023]
- http2: Landhof Heyner with extensive information about the history of sheep transhumance in the Southern Germany and today landscape management with sheep [accessed: 16.01.2023]:
 - <https://www.landhofheyner.de/sch%C3%A4ferei/landschaftspflege/> [accessed: 16.01.2023]
- http3: <https://www.unesco.de/kultur-und-natur/immaterielles-kulturerbe/immaterielles-kulturerbe-deutschland/schaefererei> [accessed: 16.01.2023]
- http4: Götz, Uschi (12.04.2016): “Ohne Schafe keine Kulturlandschaft”, <https://www.deutschlandfunkkultur.de/auf-der-schwaebischen-alb-ohne-schafe-keine-kulturlandschaft-102.html> [accessed: 16.01.2023]
- http5: Sheep-farming: <https://de.wikipedia.org/wiki/Sch%C3%A4ferei> [accessed: 16.01.2023]
- http6: <https://naturpark-lueneburger-heide.de/natur-und-kultur/heide/schaefer-und-schnucken> [accessed: 04.10.2022, 17.01.2023]
- http7: Wildberg, North Rhine-Westfalia: <http://www.wildberg-ev.de/html/beschreibung.html> [accessed: 04.10.2022, 17.01.2023]
- http8: <https://www.destatis.de/DE/Themen/Branchen-Unternehmen/Landwirtschaft-Forstwirtschaft-Fischerei/Landwirtschaftliche-Betriebe/Tabellen/oekologischer-landbau-bundeslaender.html>
- http9: <https://www.destatis.de/EN/Themes/Economic-Sectors-Enterprises/Agriculture-Forestry-Fisheries/Agricultural-Holdings/Tables/agricultural-holdings-and-utilised-agricultural-area-by-size-of-the-utilised-agricultural-area.html?view=main>
- http10: <https://nagelfluhkette.info>
- http11: <https://dewiki.de/Lexikon/Vorlandmolasse>
- http12: <https://www.lwl.org/geodatenkultur/objekt/262783>
- http13: Hungen, Hessen: Die Schäferstadt. Hungen: the shepherd’s village: <https://www.hungen.de/leben-wohnen/gemeindeportrait-die-schaeferstadt/> [accessed: 04.10.2022]
- http14: <https://pages.destination.one/de/vogelsberg-touristik/streaming/detail/POI/8DEBA1E85185A26E60C3F6258E4D185D/erlebnisraum-schaf-und-natur> [accessed: 04.10.2022]
- http15: Erlebnisraum Schaf und Natur: Adventure room sheep and nature: <https://pages.destination.one/de/vogelsberg->

touristik/streaming/detail/Tour/t_100161745/auf-sch-fers-spuren [accessed: 04.10.2022]

- http16: <https://traegerundtraeger.de/projekte/wetterauer-hutungen/> There are also interviews undertaken with Peter Link, the predecessor of the today herdsperson [accessed: 04.10.2022]
- http17: Lüneburger Heide, Lower Saxony [accessed: 04.10.2022]: <https://www.youtube.com/watch?v=4zjCsBtNR58>
- http18: <https://naturpark-lueneburger-heide.de/natur-und-kultur/heide> Info about the genesis of the Lüneburger Heide (Heathland) and its transhumance [accessed: 04.10.2022]
- http19: https://www.stmelf.bayern.de/mam/cms01/agrarpolitik/dateien/massnahmenkombination_kulap.pdf
- http20: https://www.stmelf.bayern.de/mam/cms01/agrarpolitik/dateien/massnahmenuebersicht_vnp.pdf
- http21: <https://oberallgaeu.info/veranstaltung/viehscheid-2023-im-oberallgau> [accessed 17.01.2023]
- http22: https://www.all-in.de/ruderatshofen/c-lokales/noch-ein-letztes-mal-viehscheid-2022-die-termine-am-wochenende_a5175254
- http23: https://www.all-in.de/ruderatshofen/c-lokales/noch-ein-letztes-mal-viehscheid-2022-die-termine-am-wochenende_a5175254
- http24: <https://standort.allgaeu.de/die-allgaeuer-alpwirtschaft>
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- http27: https://en.wikipedia.org/wiki/Hermann_L%C3%B6ns
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- http29: https://commons.wikimedia.org/wiki/File:Gemmi,_Spittelmatte_und_%C3%9Cschnegrat.jpg
- http30: https://commons.wikimedia.org/wiki/File:Immenstadt_-_Viehscheid_150912_-_24.jpg