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Animal Farming

After the Age of the Carnivore: How Changing the Diet Could Transform the Landscape

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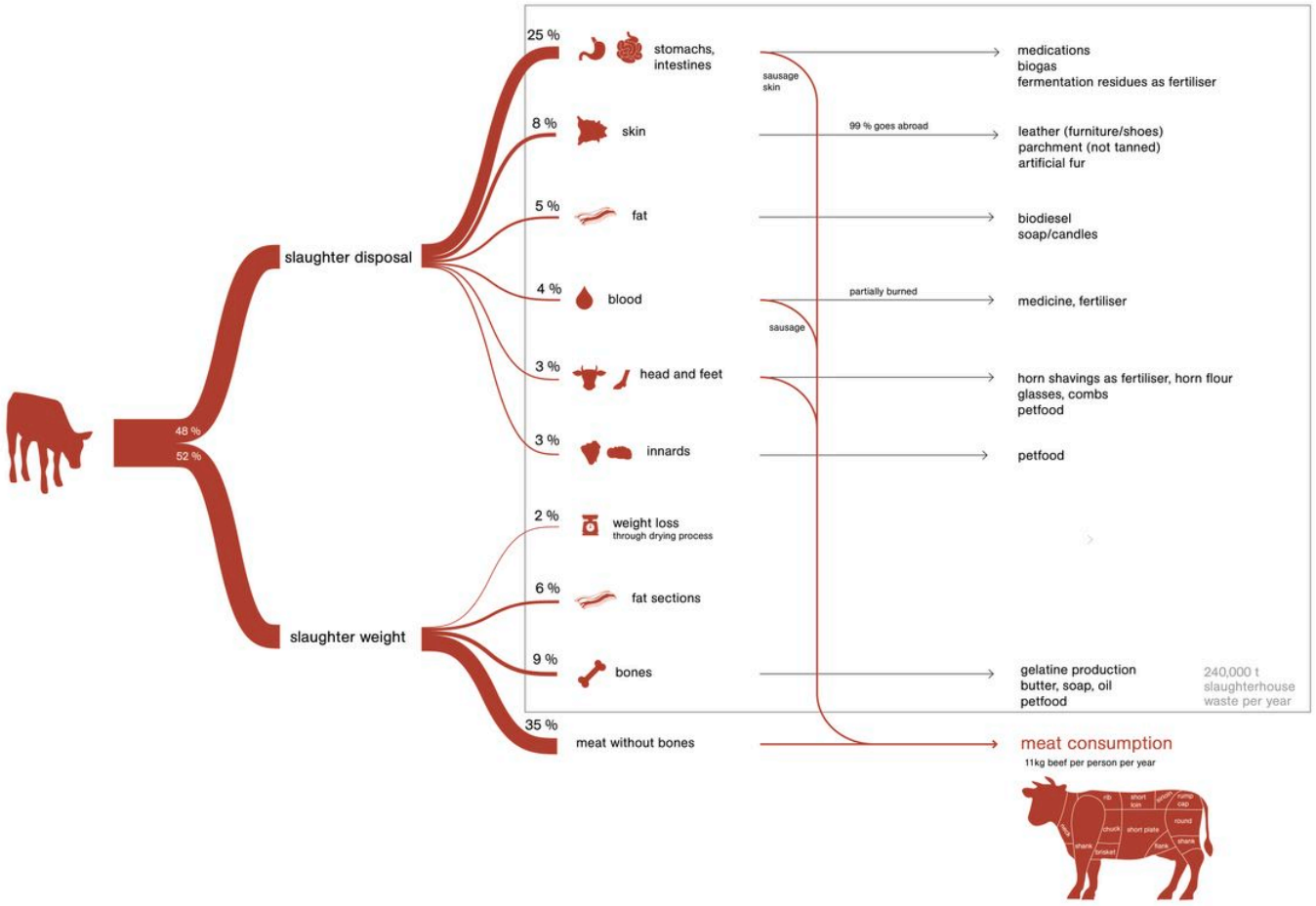
The topic of animal husbandry triggers heated debates among consumers, farmers, and politicians around ecology and animal ethics. For this report, we examined conventional practices of meat production in Switzerland and explored their alternatives. Through the lens of reduced meat consumption per person, we outlined how the landscape might change and what alternative practices might develop. But are the Swiss ready to challenge the image of the Swiss landscape with grazing cows on green pastures?

The Meat We Eat

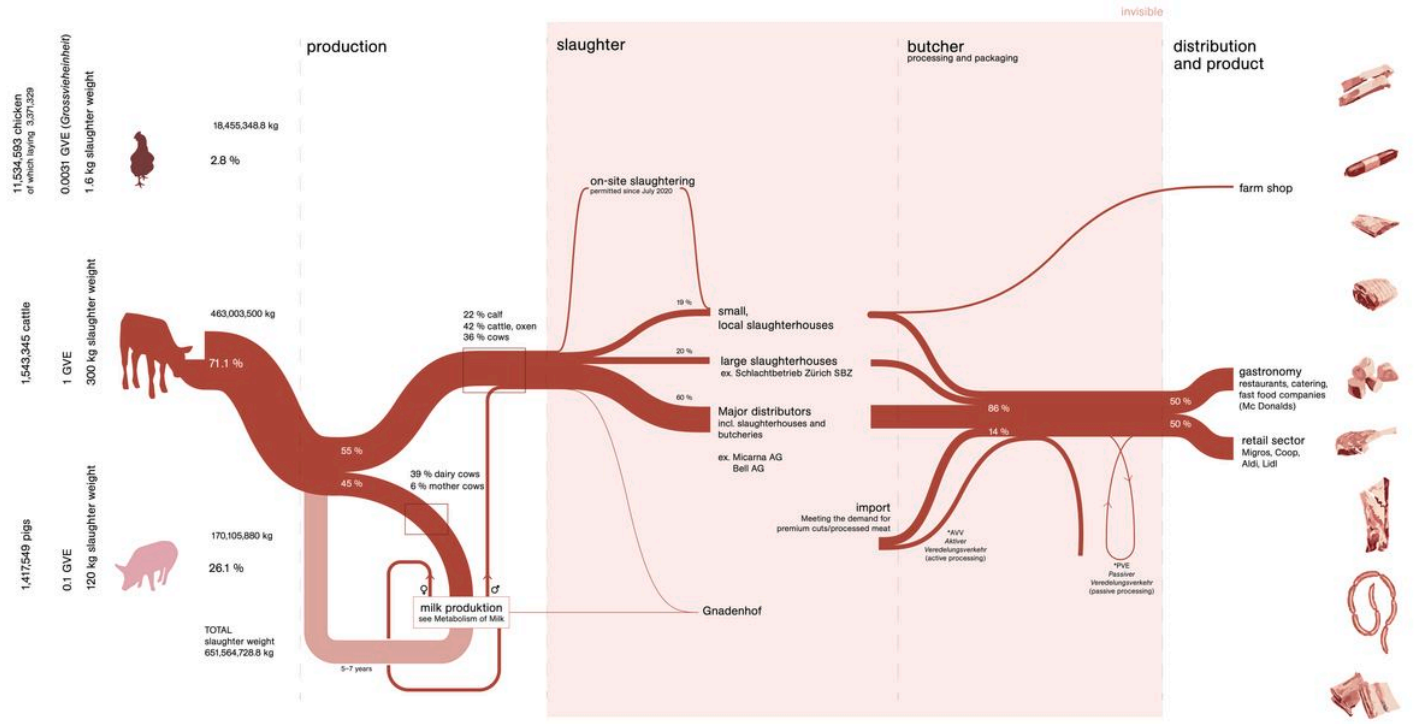
In Switzerland, most of the animal meat is consumed as ready-to-cook cutlet, steak, minced meat, or chicken breast, among others, from the supermarket. The access to such processed foods is possible thanks to the introduction of mechanisation and automatisation in animal farming and slaughtering in the 20th century. Alongside this industrialisation, the production of meat became increasingly invisible to the consumer’s eye.

To uncover the production of the commodity “beef” this investigation kicks off at the end of the production chain: on the butcher’s table, where the animal is turned into meat.

The body of an animal is made up of various parts that require professional handling when processed into a consumable product. This includes separating the “useful” parts from what is considered “waste.” Only 52 % of the former live weight of a cow, the so-called cold slaughter weight, is subsequently used as food for humans, which is a relatively low percentage compared to other countries. The remaining 48 % go to other processing industries such as animal food production, biogas, fertiliser or incineration.



Beef processing: half of the cold slaughter weight eventually goes to human consumption. Source: Agridea [https://agridea.abacuscity.ch/abauserimage/Agridea_2_Free/3116_3_D.pdf?xet=1589429559794#:~:text=Der%20Stellenwert%20der%20Wertsch%C3%B6pfungskette%20Fleisch,laufenden%20Preisen%2C%20Sch%C3%A4tzungen%202016], 2009.



The Metabolism of beef: the transformation of the animal into a product.
Source: Agridea, 2017.

The retail sector is dominated by major Swiss food producers such as Micarna (Migros) and Bell (Coop). As they are part of one of the two large wholesale distributors Migros and Coop it favours the acceleration of mass production. However, since July 2020, on-site slaughtering has reappeared as a counter model to slaughterhouses, in order to minimise the animals' stress due to transportation.

The Self-sufficiency rate of meat in Switzerland is at 86 %, which means that 14 % are imported to meet the demand, mainly for premium cuts and mass-processed meat. Low transportation costs are the main driver for import and also favour the active and passive processing (*Veredelungsverkehr*) with Switzerland's neighbouring countries.

How the Industrialisation of Livestock Production Transformed Meat into a Mass Product

The commodification of meat has begun as people became wealthier and thus demanded for more, as suddenly everyone could afford some. One of the main concepts of industrialisation, the one of the assembly line work, has not been invented by Henry Ford, as often quoted so, but its roots actually lie in the slaughterhouses of Chicagos Union Stockyards from around 1900. Already by this time they have been providing 80 percent of the whole meat consumption of the US.

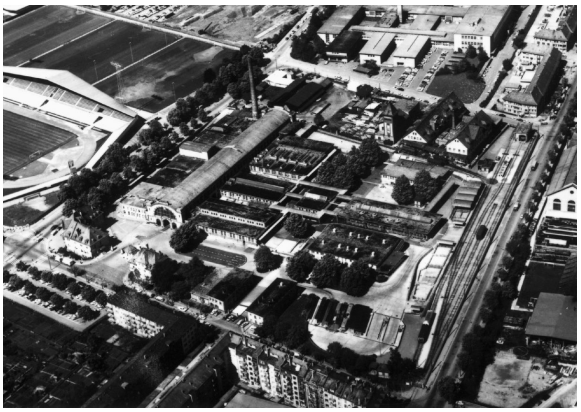
This invention has soon spread over the whole world and has also arrived in Zurich, where still today and ever increasingly the processing of an animal into meat is being performed on a complex chain of work. This way slaughterhouses have become highly industrialised facilities, which still also depend a lot on manual labour, because there are certain steps in between the rails and machines, which only the human hand can perform.

Case Study: Slaughterhouse Zurich

1900: skinning of cattle in the slaughter hall for large cattle, slaughterhouse Zurich. Photographer: unknown. Source: Baugeschichtliches Archiv der Stadt Zürich.

1960: slaughter bodies carried over stairs to the exterior by the transport rail, slaughterhouse Zurich. Photographer: Erwin Kuenzi. Source: Baugeschichtliches Archiv der Stadt Zürich.

1980: halved cattle hanging in the cooling hall, slaughterhouse Zurich. Source: Baugeschichtliches Archiv der Stadt Zürich.

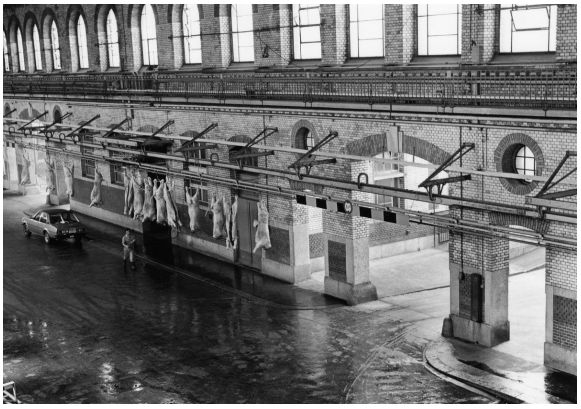


1909: aerial view of the slaughterhouse Zurich. Source: Baugeschichtliches Archiv der Stadt Zürich.

1909: slaugher bodies moved by butchers in the cold storage, slaughterhouse Zurich. Photograph: Heinrich Wolf-Bender. Source: Baugeschichtliches Archiv der Stadt Zürich.

1930: locomotive for cattle transports at the washing ramp, slaughterhouse Zurich. Source: Baugeschichtliches Archiv der Stadt Zürich.

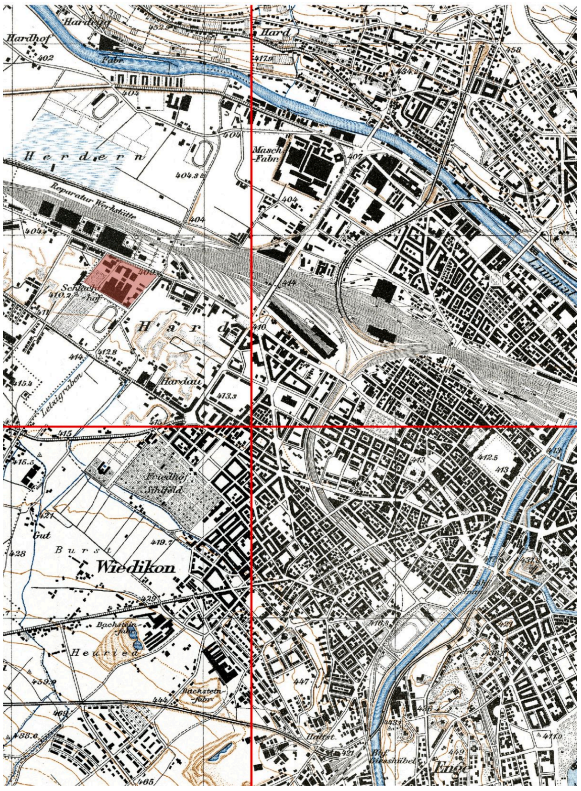
1980: workers passing the prominent gate of the connection hall. Source: Baugeschichtliches Archiv der Stadt Zürich.



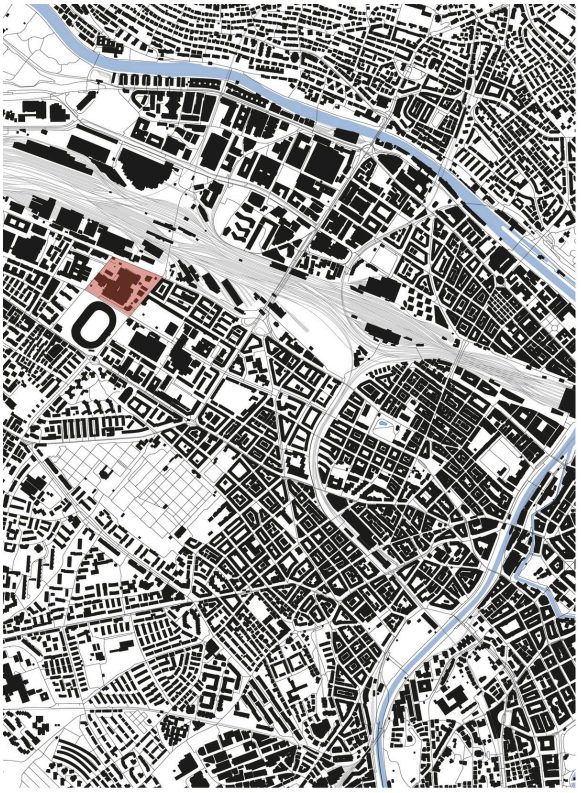
1980: animal bodies hanged in connection hall before delivery to meat processing, slaughterhouse Zurich. Source: Baugeschichtliches Archiv der Stadt Zürich.

1980: empty slaughter hall for small cattle with numerous slaughtering stations, slaughterhouse Zurich. Source: Baugeschichtliches Archiv der Stadt Zürich.

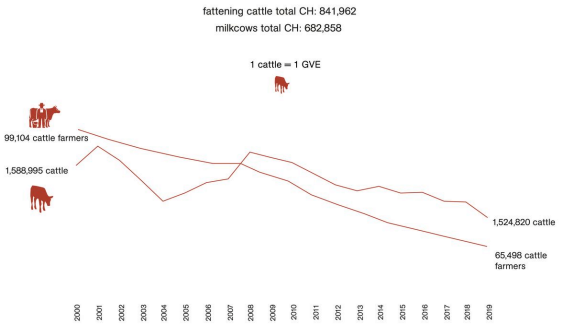
1980: transport mechanisms lead to the exterior in front of the stable for small cattle, slaughterhouse Zurich. Source: Baugeschichtliches Archiv der Stadt Zürich.



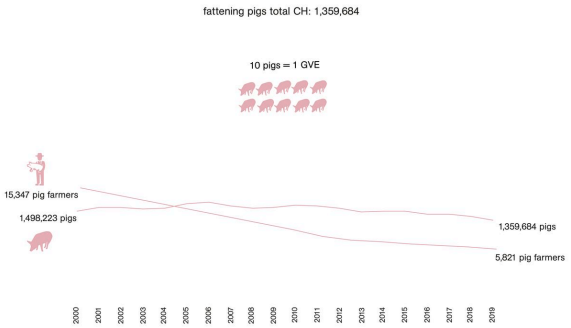
Situation plan of the slaughterhouse Zurich at the edge of the city in 1930.



Situation plan of the slaughterhouse Zurich within the city in 2020.



As a current trend in the farming sector of Switzerland one finds a reduction in the amount of farmers with increasing or stable livestock numbers, thus leading to intensification and an increase in production per animal. Source: Agristat, 2019.



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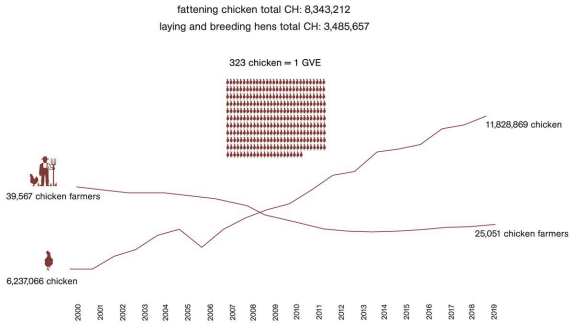

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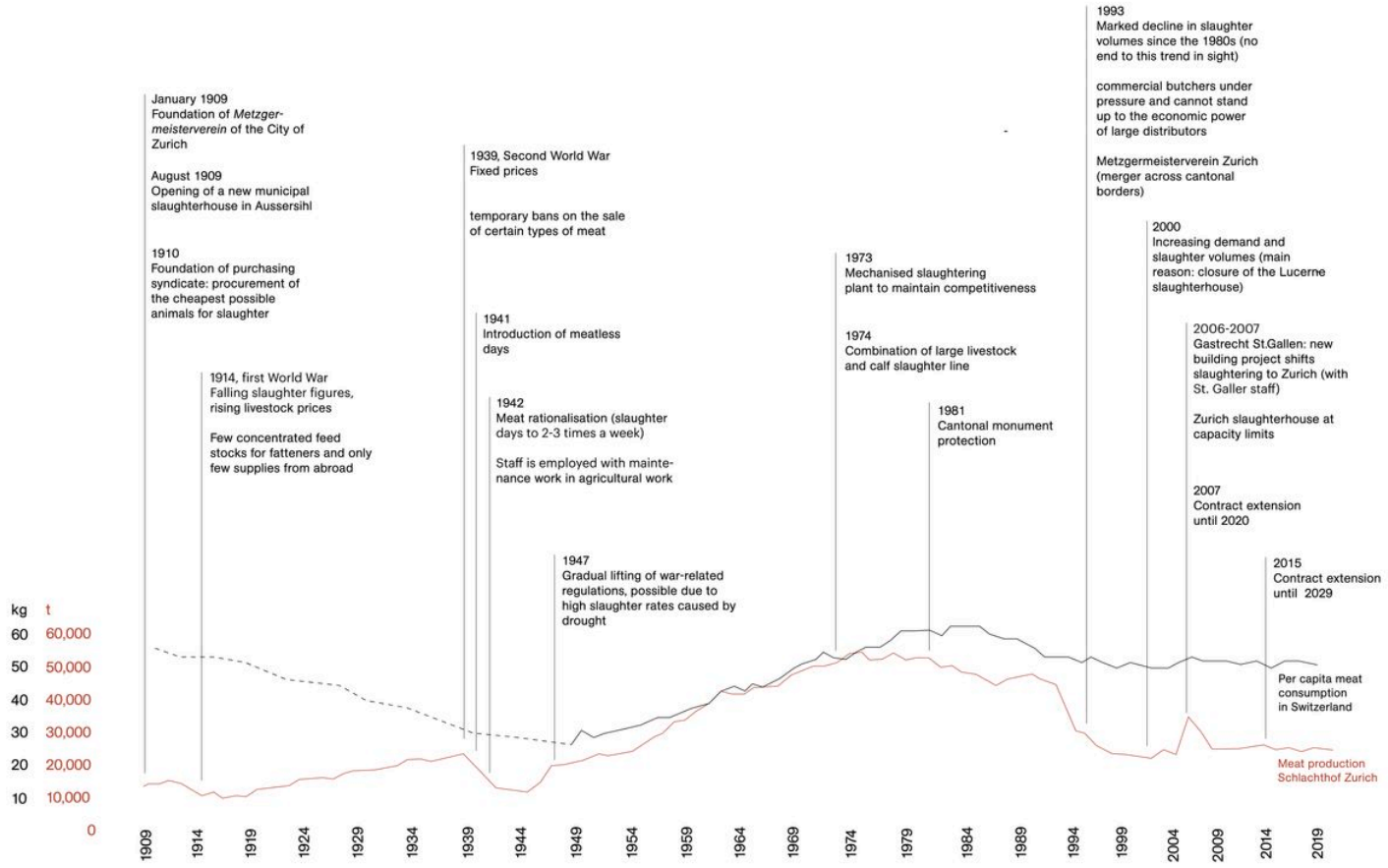
The example of the slaughterhouse in Zurich manifests this transition from representative monument to industrialised facility. In 1909, when the stately building of the slaughterhouse was built, at the time at the outskirts of the city, the understanding of the slaughtering process was still another. The building was not yet only understood as a highly efficient killing facility, but still stood for something representative, to be proud of. The following years brought some conversions, transforming it more and more into the industrialised facility we know today. The remaining stately facade stands opposed to the invisible processes behind it, that we barely notice today, although the city has overgrown the street block of the today called Schlachtbetrieb Zürich SBZ by far. These days the relocation of this facility is being discussed, making space in the city, sustaining the invisibilisation of the process even more and increasing transport ways.

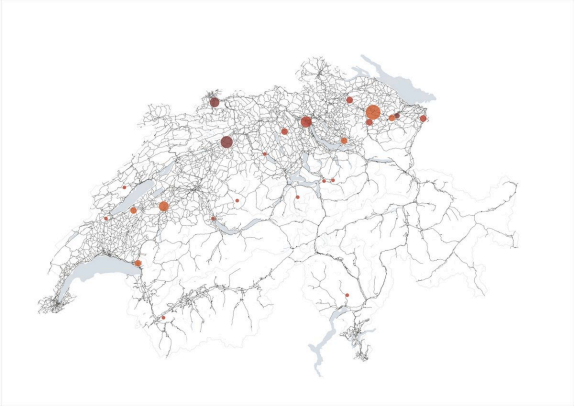
The slaughterhouse Zurich is one of the largest remaining slaughterhouses in Switzerland, whereas it represents an exception between the other big players in Switzerland, that have all settled in peripheral areas of the Swiss Plateau, with close connection to the road network.

The proximity to road network speaks of the distribution around the whole facility. Livestock has to be easily transported to the place and the processed meat then has to be distributed to the consumers again. Interestingly enough, what we notice as an average citizen is only the latter, whereas the first step of transport, where the animal is still live actually happens during early morning hours.

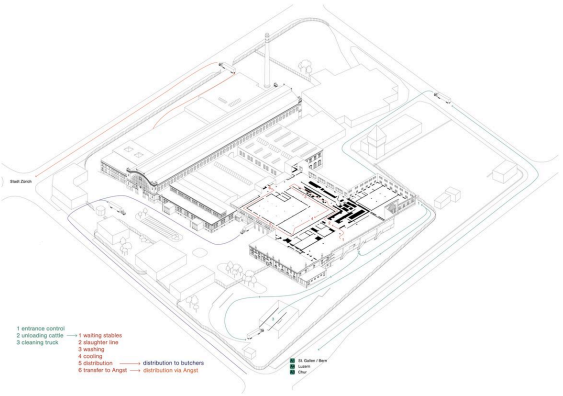
On the slaughterhouse road the cattle passes diverse control points by the veterinary office in different stages of the slaughtering process and especially the act of the killing is a highly debated situation, that is strictly regulated in the *Tierschutzgesetz* (Animal Protection Law).



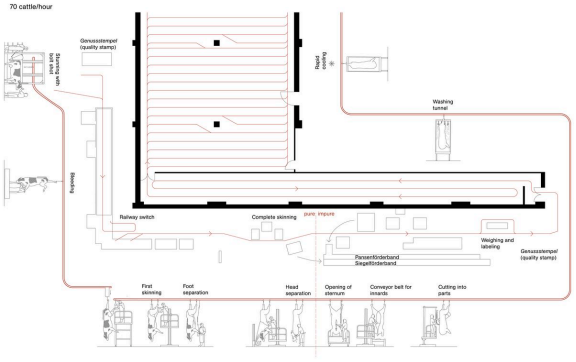
Historical development of SBZ, decreasing meat production with overall increase of meat consumption in Switzerland. Source: *Fleisch für Zürich: 100 Jahre Schlachthof Zürich, 100 Jahre Metzgermeisterverein Zürich, 1909–2009,* Zurich 2009.



Distribution of slaughterhouses In Switzerland concentrated on the Swiss Plateau with close proximity to the road network. Source: Micarna and Bell.



Slaughterhouse Zurich, movement and flows within the site.



Slaughterhouse road at slaughterhouse Zurich, where cattle turns into beef. Source: *Handbook of Tyranny,* Zurich 2018.

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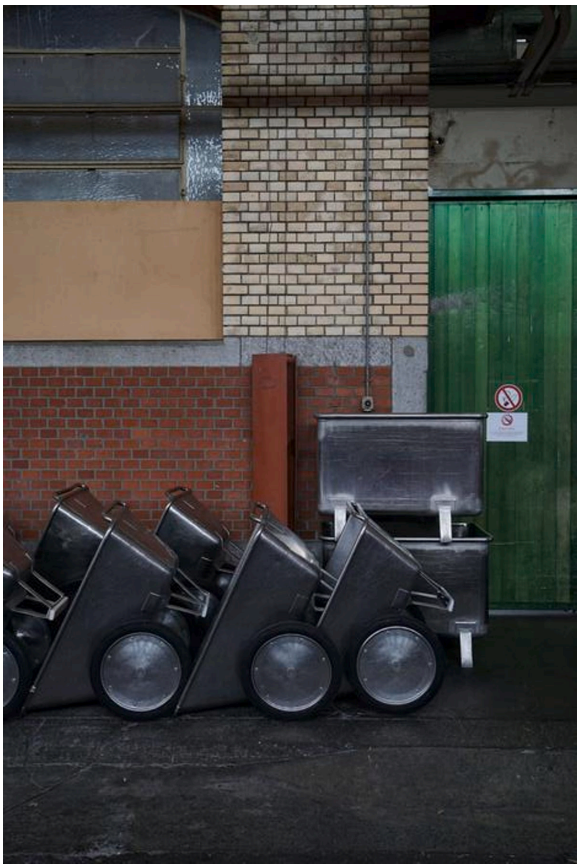
On the slaughterhouse road the cattle passes diverse controls by the veterinary office in different stages of the slaughtering process and especially the act of the killing is a highly debated situation, that is strictly regulated in the *Tierschutzgesetz* (Animal Protection Law). But as long as we eat meat, the killing is part of it.

“At the SBZ yearly 30,000 cattles, 120,000 pigs, 65,000 sheep, 900–1,000 goats and 20,000 calves are slaughtered.”—Michael Achermann, Metzgerei Angst

The Metzgerei Angst is an independent business and only shares the premises with the slaughterhouse Zurich. Nevertheless architectonically the two facilities are also internally directly connected in order to keep the production line between slaughter and butcher fluent. Angst inhabits the rooms along the representative connection hall where also historically access for buyers and distributors has been provided. From here on the meat was and is spread into all of Switzerland, as packaged product or as unprocessed meat.

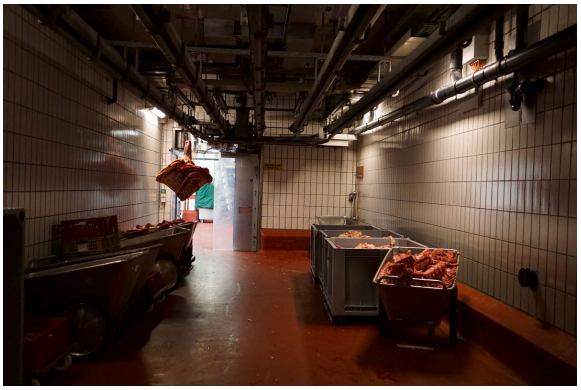
Metzger Angst nowadays owing most of the facilities in the SBZ.



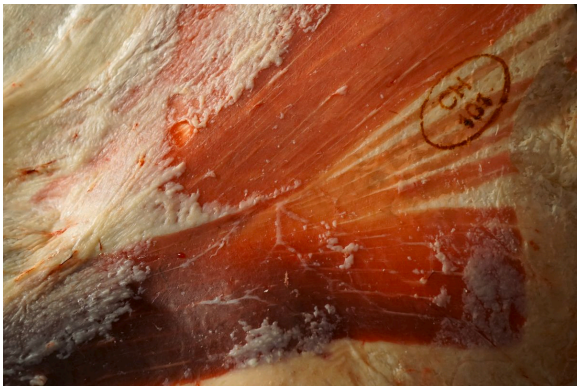
The large connection hall between slaughterhouse and butcher is now used mainly as storage space and drive through for delivery purposes.

Cleaned buckets for slaughter waist placed in front of former little butcher shops in the connection hall.

Delivery docks have been added to the monumental building of the slaughterhouse —now being used by the Metzgerei Angst.



Transition space between slaughterhouse Zurich and the adjacent Metzgerei Angst.



Quality stamp (*Genussstempel*) CH101.

Cattle divided in quarters delivered to the butcher, ready to be further processed.

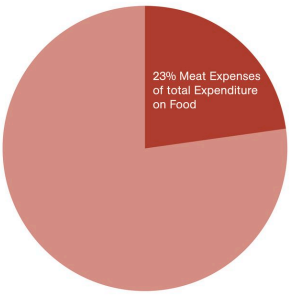
Unbalanced Profit Shares in Retail

At supermarkets and large canteens or restaurants most of the meat is being consumed. These purchasers either trade directly with the farmer or buy their meat from the butcher in between who organises the demanded mass via a livestock trading platform. But who in this chain oft trades profits how much? And how much are consumers ready to pay?

Meat makes up a significant monetary amount of the average Swiss shopping basket. This not only because of a quite high consumption, but also due to quite high meat prices in Switzerland. Many consumers are even ready to pay a bit more for meat that ensures better living conditions for the animal in the upbringing, assuming that this money flows into animal husbandry, to the farmer.

A thorough study by the Swiss Animal Protection SAP shows the shocking truth: for conventional meat around a third of the price goes to the retailer alone and with label or biological meat retails share amounts even more than half of the price paid by the customer. Many consumers seem to not be aware of this abuse, as of the interviews with consumers in the study.

Checking meat offers these days the many labels and bio certificates are very prominent. This speaks of a current trend towards more consciousness for animal welfare among customers. Farmers are also increasingly participating to this trend, but interestingly enough these days more meat is produced under label conditions, than can be sold under label prices. It seems that the price still has a huge influence on the consumer's decision, which raises the question of how big the consciousness of the consumer really is.

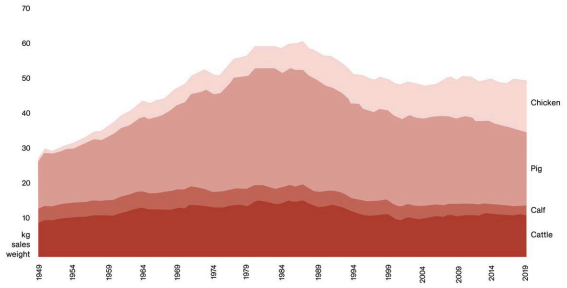


Average meat expenditures are nearly a quarter of the 9.8 % food expenditure of the total shopping basket. Per household 130 CHF/month. Source: Bundestamt für Statistik, 2019.

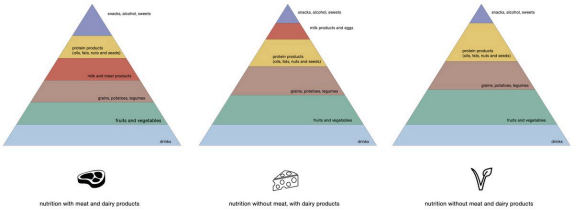
Average price per kilo of *Rindsplätzli*, large distributor reveals unequal distribution of shares in meat production. Source: Schweizer Tierschutz, 2020.

The opulent variety of meat offers at Migros resulting in obscene special offer prices.

1 Kilogramme of Meat Per Week—(in)Sane?



Per capita meat consumption in switzerland between 1949 and 2019. There has been an overall increase, above all in chicken and pig meat. Source: Proviande, 2019.



76 % omnivore
19 % flexitarian

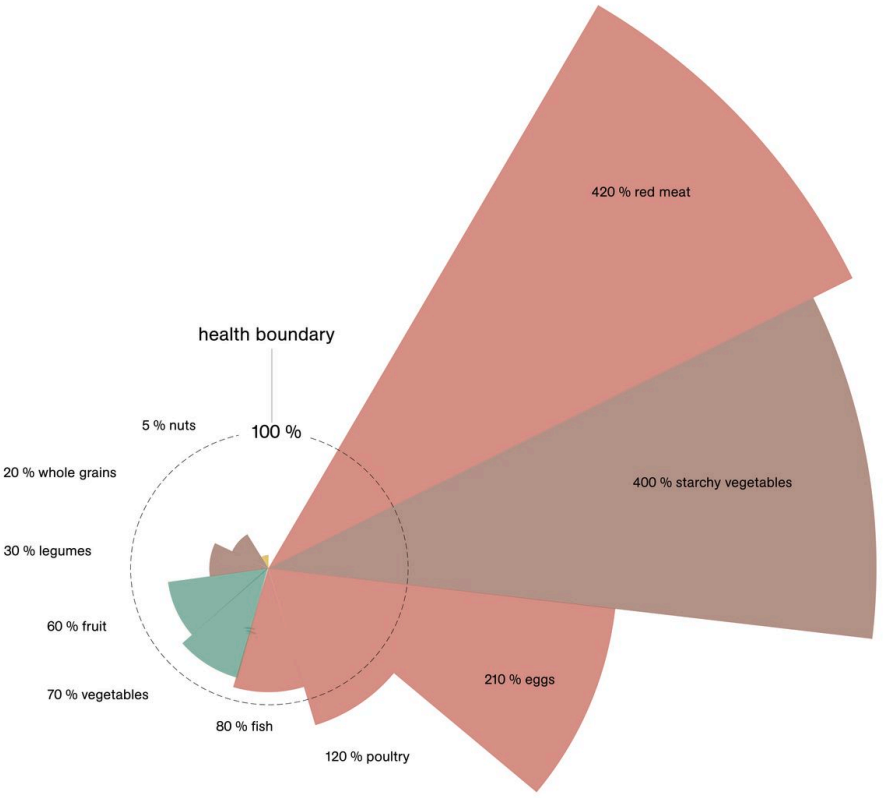
4 % vegetarian

1 % vegan

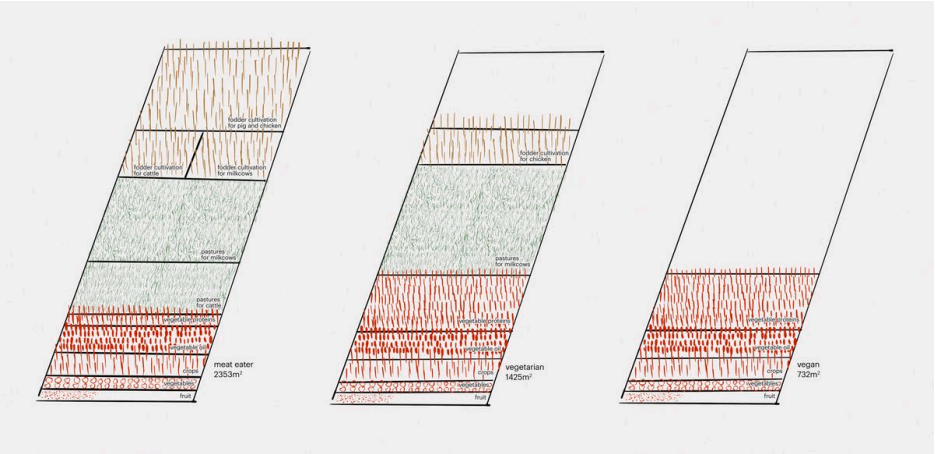
Nutrition pyramids of different diets.

Meat consumption in Switzerland has increased significantly since the mid 20th century and has reached today an average of 52 kg meat per person and per year, of which 11 kg are beef. Whereas the consumption of certain species like calf or cattle has historically remained relatively stable others like chicken have increased drastically. Today, meat-free diets are increasingly being discussed and practiced as potentially more ecological and ethical alternatives to meat-based diets.

Comparing the nutrition pyramids of vegetarians and vegans to the ones of omnivores reveal that animal products have to be replaced by plant-based alternatives to provide all nutrients the human body requires. Dietary decisions mainly rely on ethical, ecological, or health-related concerns, the later being a widely accepted argument. But also ecological arguments are being considered increasingly. Zurich's City Council has published a dietary strategy for the future including the mentioned health and environmental concerns, resulting in a demand for a reduction in meat consumption of the average citizen.



Comparison of current average nutrition of European countries shows a great mismatch of consumption and the health boundary. Source: Lancet, 2020.



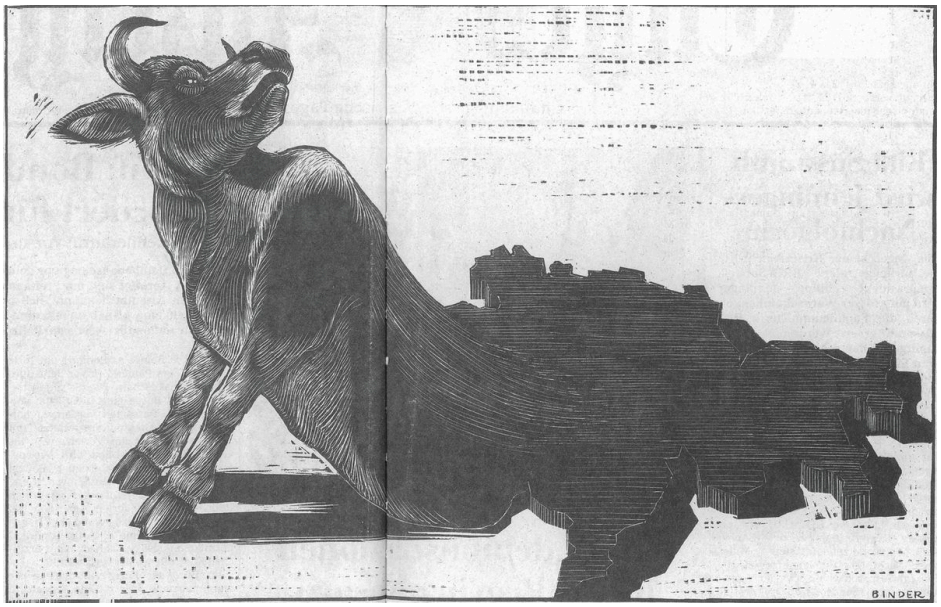
Comparing the land consumption of different diets shows that meat production occupies much more area than just crop cultivation for a vegan diet. Fodder production plays a big role in this. Source: NZZ, 2017.

The Animal Behind the Meat

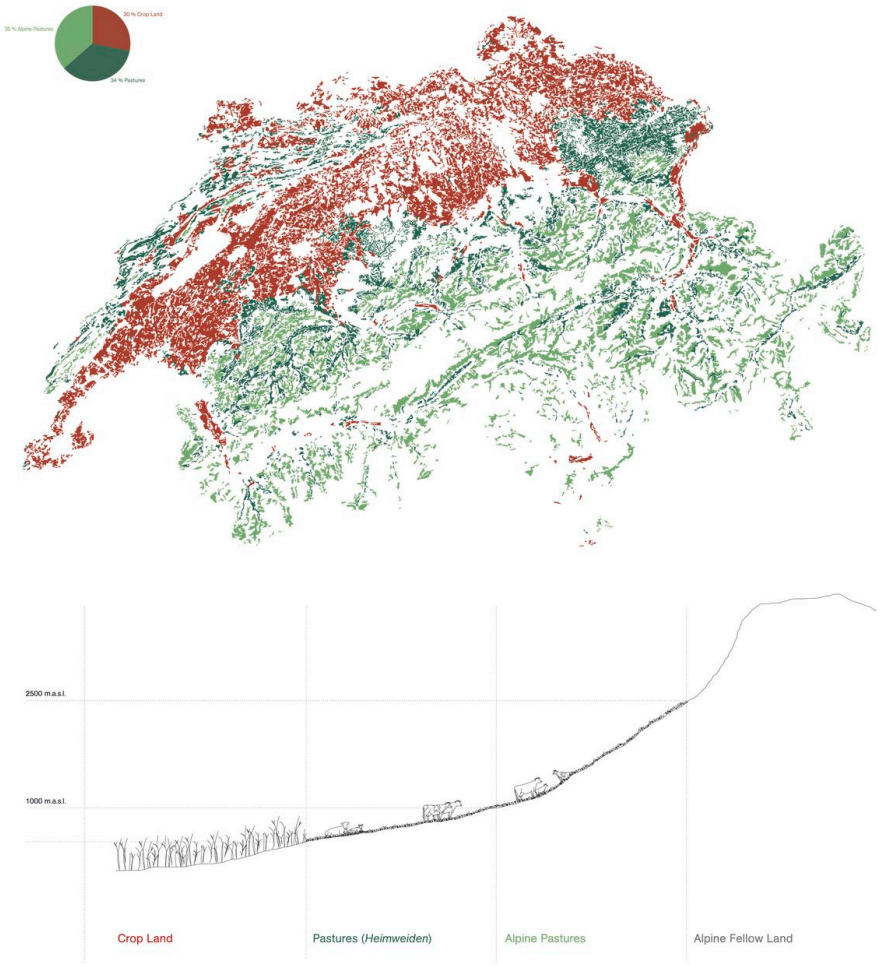
Animal husbandry is a tradition in many countries of the world and in certain areas it still represents the essential basis of nutrition, with each country having its own practices and rituals. In Switzerland, the cow is traditionally the most important farm animal. It can almost be considered a national symbol, representing not only the diversity of dairy products, but also the mountainous landscapes in which it lives.

The Swiss cow has historically been an important member of the Swiss farming family, but today it has now become just another commodified product and stands for efficient agriculture and food production. There has been an immense transition from extensive to intensive, mechanised animal farming in Switzerland, before animal farming has been a part within a cycle of agricultural production. Cattles deliver fertiliser for cropland and partly support the farm work with muscle power. Therefore cows have been the basis of existence for many Alp families. And since every farm possessed only few animals for their own, supply lands were often shared collectively. Every farmer was granted his fair share and the community supported its members.

However, increasing sales opportunities led to the expansion of livestock farming and an expansion of the small businesses. Since the end of the 19th century the animal farming sector has been largely mechanised with the goal of maximising the possible profit. This included the transition to usually only one animal species on increasingly larger farms with insufficient farmland available to produce the required feed themselves. This intensification opens up questions about the animal welfare.



The cow is a national symbol that stands for the Swiss cultural landscape. Source: *Die Schweizer Kuh,* 2013.



Land adapt for animal farming: the vast pastures and the concentration of cropland on the Swiss Plateau. Source: BFS, 2019.

Much of Switzerlands surface is characterised by mountainous landscape with meagre meadows, the perfect environment and feed for the domestic cattle. No chicken would survive on alpine pastures and no pig would enjoy the hard grounds. This explains Switzerland's long tradition and big share of cattle within all livestock.

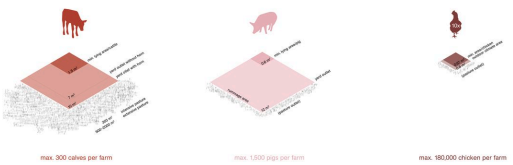
The Swiss Plateau is where livestock and crop cultivation start to compete: not primarily by taking up land for animal husbandry, but mostly with food production. Many crops we cultivate, as maize, grain, barley, and soy, work as fodder for livestock and food for people. Especially pigs and chicken kept for fattening and slaughtering are nearly exclusively fed with such cultivated crops as fodder. So it becomes clear that cattle are topographically seen and concerning fodder issues the fittest animals for the Swiss landscape.

Swiss Animal Protection Law: A Framework for Decent Livestock Conditions?

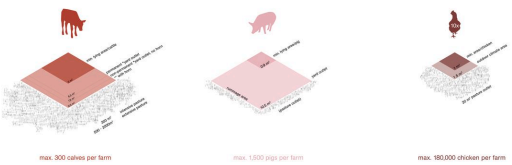
The Swiss animal protection law, the Schweizer Tierschutz STS, is considered to be the strictest in the world. “The five freedoms” form the “philosophy” behind the animal protection describe the basic conditions which have to be provided by any animal keeper. It fights for comprehensive protection of farm animals through political initiatives and campaigns. It focuses on advising farmers, animal transporters, and slaughterhouse operators, on consumer information, on monitoring animal-friendly labelled products, and on transparent, animal welfare-compliant imports.

The comparison of transportation guidelines between Switzerland and the EU reveals strong differences. Source: Schweizer Tierschutz.

The STS has already achieved a lot for the benefit of farm animals. For example, the legal bans on battery cages for chickens, the fixation of mother sows, as well as castration and other interventions on animals without the elimination of pain. Unique in the world is the restriction of animal transport for slaughter to a maximum of six hours. What Switzerland also likes to highlight in the international exchange are the comparably low maximal numbers of livestock per species per farm, which also claim to provide more animal welfare for the individual. But talking about ethical concerns it is questionable whether a comparison between Switzerland and foreign countries is fruitful. The question is not: are we better than the other? But it has to be: Are we actually providing animal welfare?



Tether husbandry minimal space requirements and maximum livestock numbers of cattle, pig and chicken per farm. Source: Schweizer Tierschutzverordnung, 2008.



Group husbandry minimal space requirements and maximum livestock numbers of cattle, pig and chicken per farm. Source: Schweizer Tierschutzverordnung, 2008.

Large parts of Swiss livestock profit from the voluntary programs ensuring animal welfare, such as BTS or RAUS. Bio-suisse follows the RAUS rules, which define the outdoor run over the year, the minimum lying area remains in accordance with the Swiss *Tierschutzgesetz*.

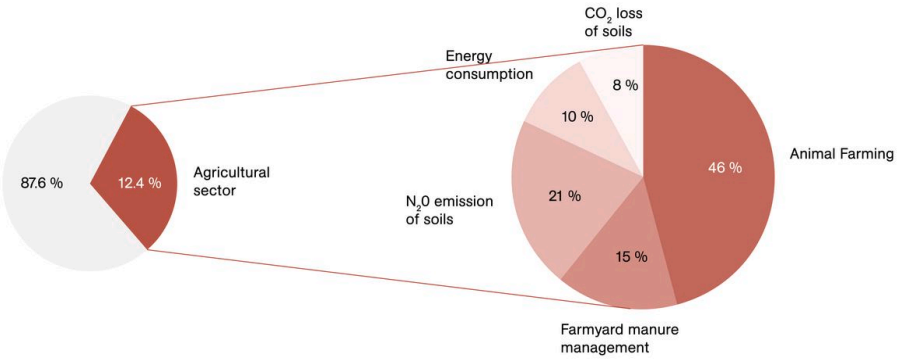
Moreover within animal welfare the conditions concerning minimal spatial requirements are highly regulated—especially for the showcase object cattle. Interestingly, the minimal space for one animal usually does not change with labels like BIO or Demeter, what really matters then, is how much outlet they get. To control the regular outlet of livestock the RAUS (Regelmässiger AUSlauf) rules have been formulated: for cattle they state that during summer months 26 day per month and during winter months 13 days per month have to be spent outside, in outlet. In Switzerland 83.7 % of all animals benefit of the RAUS program and 58 % of the BTS. It is important to mention, that these programs are highly subsidised—creating a certain monetary incentive. Are there alternatives to increase animal welfare without economical thoughts as motivation?

Advertisement from Proviande showcasing chicken husbandry as Swiss idyll. Source: Proviande, Schweizer Fleisch, 2019.

The reality of Bell chicken farms with BTS standards lets one question the conditions of the program. Photographer: Nadine Jürgensen, NZZ, 2016.

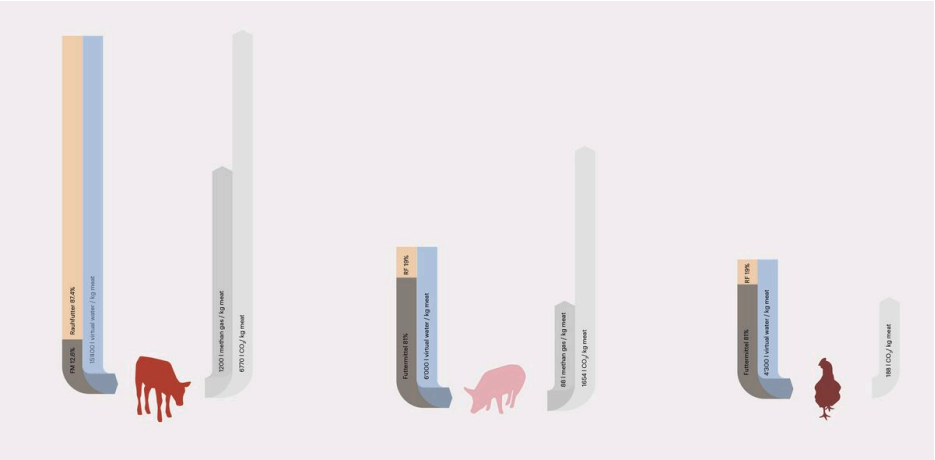
Animal Farming: the Climate Killer in Agriculture

Of the total greenhouse gas emissions in Switzerland 12.4 % source in agricultural production. Animal husbandry is the most problematic sector within agricultural production regarding the greenhouse gases emitted. This foremost because of the problematic carbon dioxide and methane emissions produced by cattle. In a cattle's stomach organic material gets degraded without oxygen supply, which is the process that leads to methane production. Additionally, cattle contaminate soils with laughing gas when urinating on the meadows. This gas is eventually released from the soils again into our atmosphere.



The emissions of the agricultural sector equal the emissions of the animal farming sector. Cattle is the major emitter of various greenhouse gases and it can therefore be considered as the most harmful livestock for the climate. Source: BAFU, 2019.

On top of these “inland”-produced emissions come the ones, that are outsourced to other countries through Swiss animal farming. This derives mostly from the demand for animal fodder. Whereas cattle feed mostly grass from the meadows they are living on, a pig’s and especially a chicken’s diet consists mainly of fodder especially produced for it. But only 15 % of this crude protein for livestock feeding are provided inland. In order to solve this inability for self-sustainability we need an area under cultivation abroad of more than 250,000 hectares, which is almost double the amount of Swiss farmland. This is why yearly around 300,000 tonnes of mainly Brazilian soy alone was imported into Switzerland for animal feed purposes. Big areas of rainforest are being deforested for a heavily intensified fodder cultivation–resulting in the global animal farming sector being responsible for about 80 % of all forest losses.



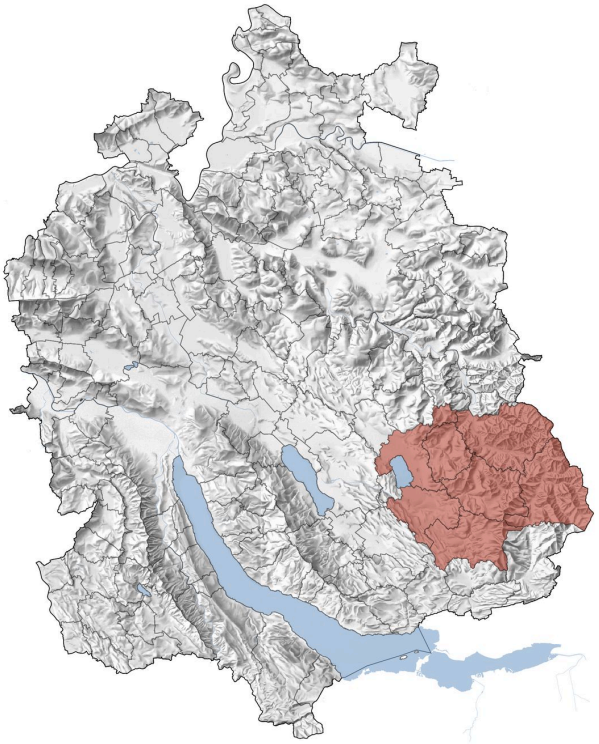
Overview of nutrition intake and emissions per livestock, with large percentage of animal feed for pig and chicken on the one hand and drastic emissions within cattle farming. Source: Agridea.

Emissions are highest with meat eaters. Source: Swissveg.

Reconnecting these environmental issues to our diet we notice clearly that the highes emissions lie with the meat consumers. It should not be forgotten that the Swiss diet causes almost 30 % of the environmental damage and 23 % of the indirect climate emissions. A purely plant-based diet would halve the environmental impact, which would result, in a 76 % reduction in land use. The same number of calories would therefore require much less land. In numbers this means that livestock uses about 40 % of the arable land to deliver 20 % of human calorific intake: the ratio is twelve calories of chicken for every hundred calories of grain, three calories of beef for every hundred calories of grain. This means: What lands on our plates, what we import and how we feed our local farm animals has a measurable effect on the environment.

Tössbergland: Uncovering Animal Farming Practices

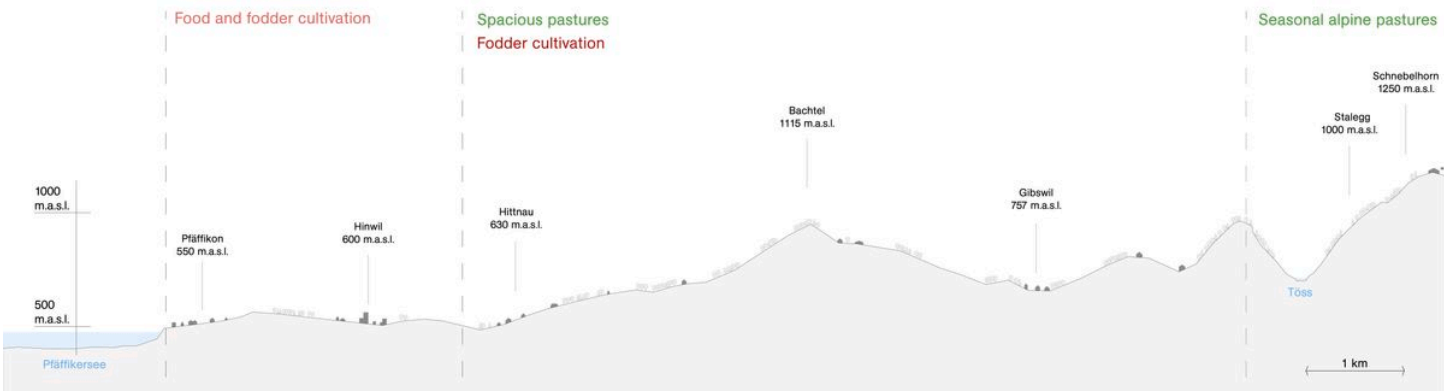
The Zürcher Oberland, a region located in the southeast of the Canton of Zurich, is a multifaceted landscape, with crop cultivation on the lower parts and animal husbandry in the pre-alpine zones, according to the land's conditions. Zones with potential for crop cultivation are merely used for pastures. Do the climatic conditions not allow for this type of agriculture or is it economically justified?



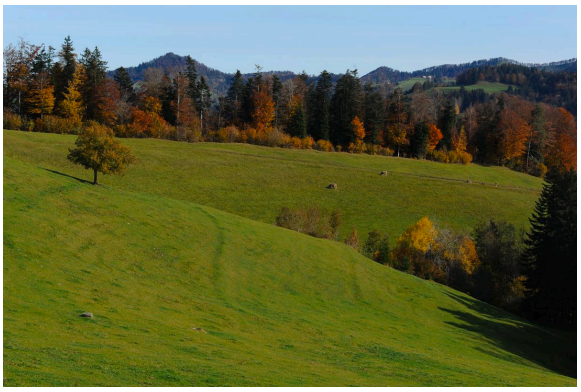
The Zürcher Oberland.

The Altitude Paradigm

The altitude with its specific topography and climatic conditions allows for a specific agricultural activity within. In the lower region, crop cultivation is practiced, which relies on the use of heavy machinery like tractors. Those are not suitable for steep slopes, so the cultivation in more mountainous areas is limited to pastures and meadows, which sometimes even have to be mowed by hand. Certain zones with potential for crop cultivation are merely used for pastures. Do the climatic conditions not allow for this type of agriculture or is it economically justified?

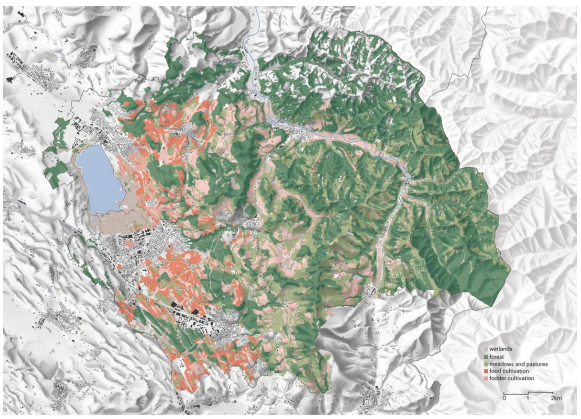


Lowlands.

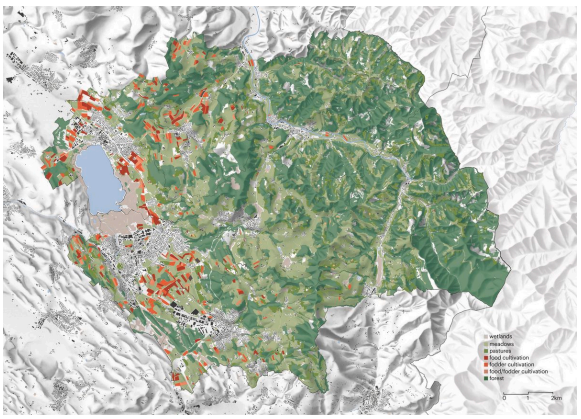


Highlands.

Pre-alpine lands.

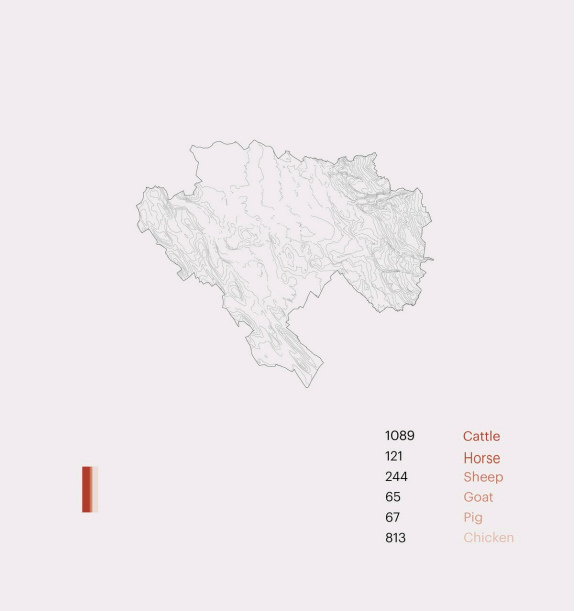


Soil qualification and potential
in the Zürcher Oberland.

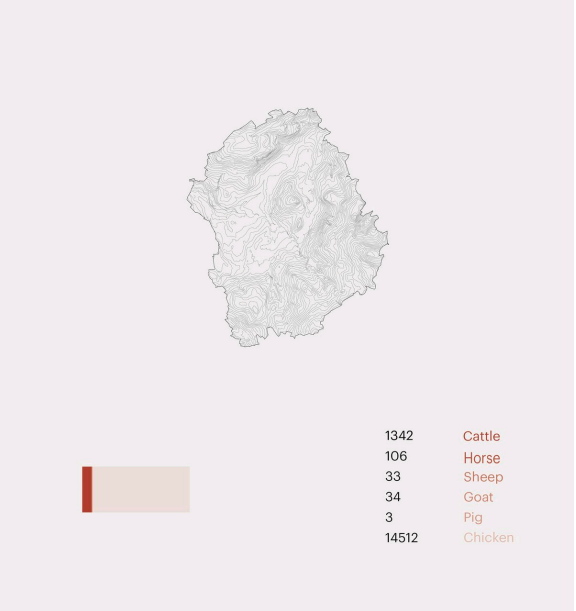


Effective soil usage in the Zürcher Oberland

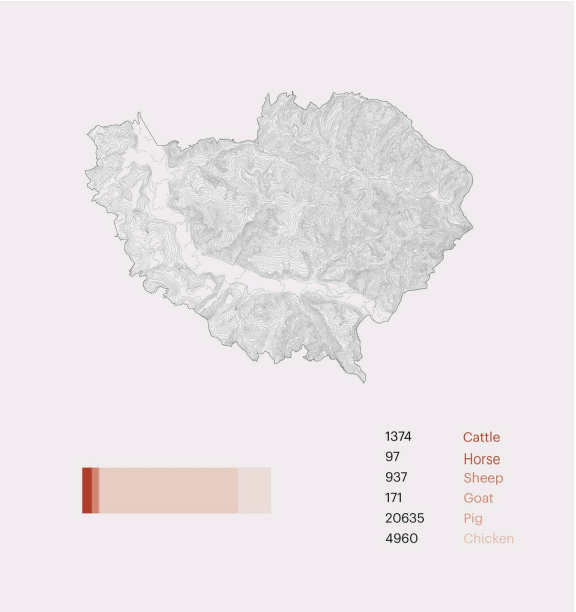
Quantitative Livestock Analysis per Commune



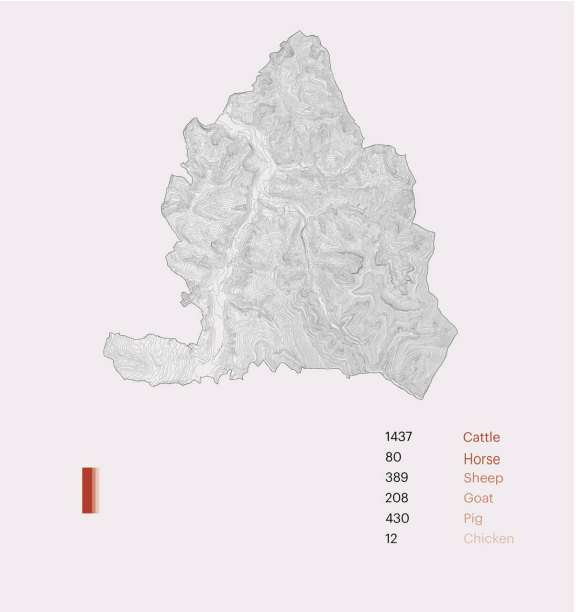
WETZIKON
1089 cattle
67 pig
813 chicken



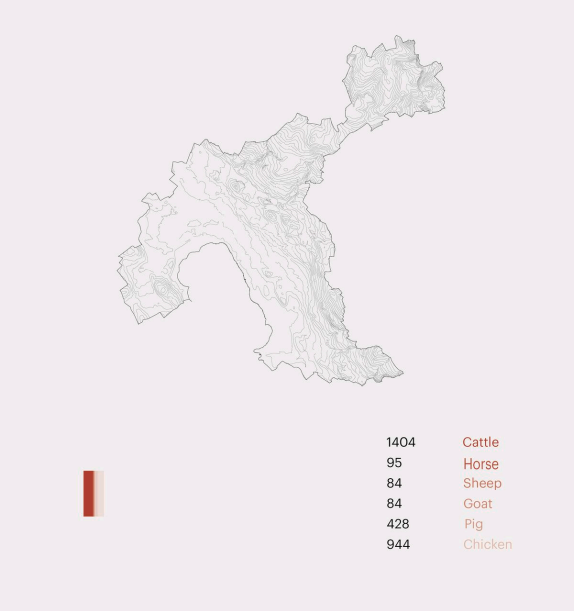
HITTNAU
1342 cattle
3 pig
14512 chicken



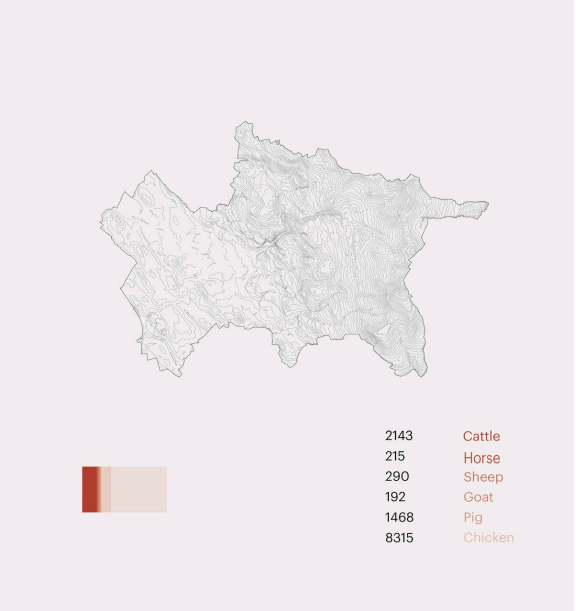
BAUMA
1374 cattle
20635 pig
4960 chicken



FISCHENTHAL
1437 cattle
430 pig
12 chicken

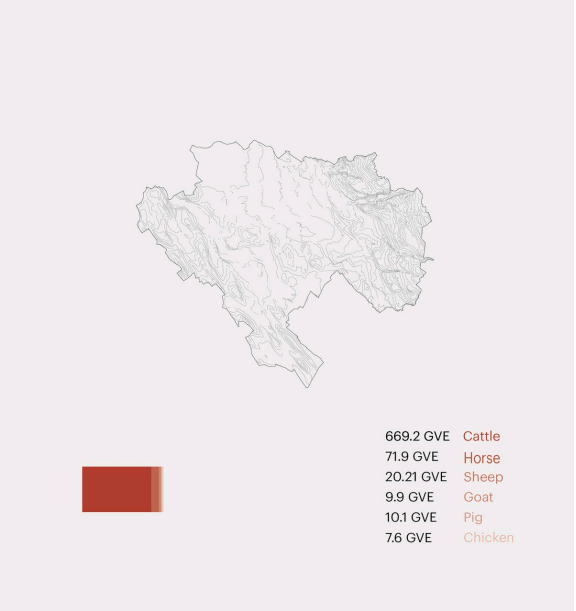


PFÄFFIKON
1404 cattle
428 pig
944 chicken

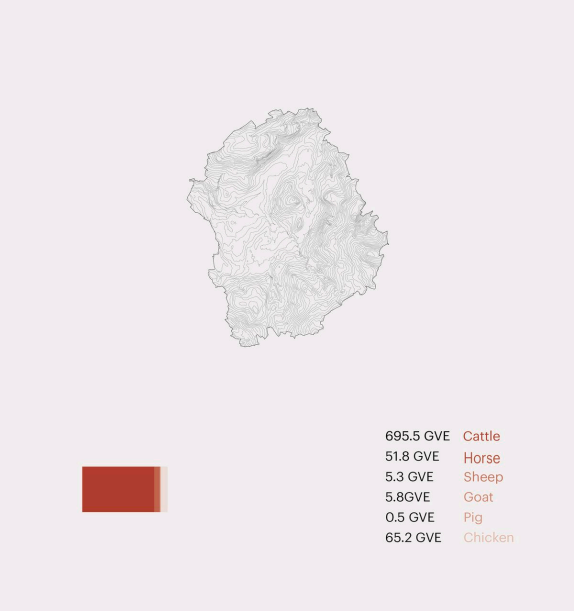


HINWIL
2143 cattle
1468 pig
8315 chicken

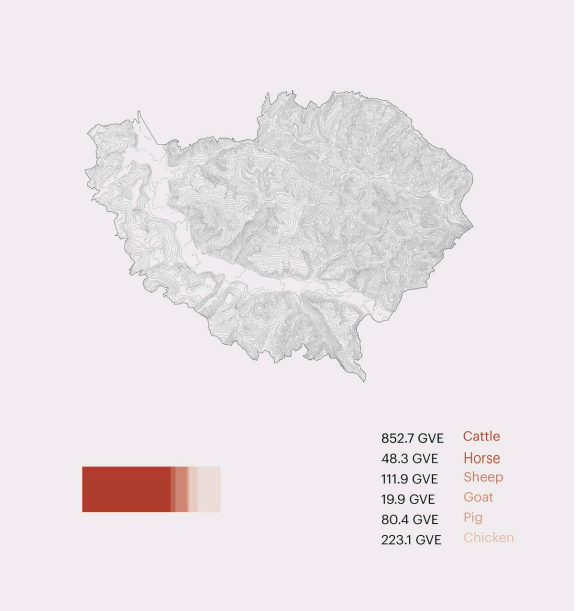
Grossvieheinheiten



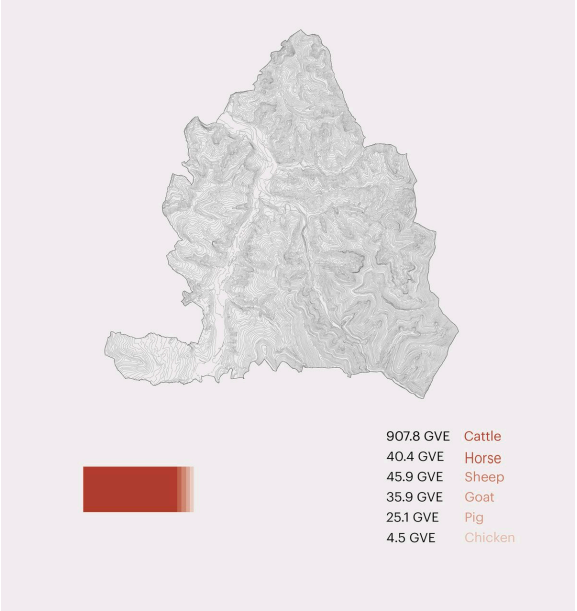
WETZIKON
669.2 cattle
10.1 pig
7.6 chicken



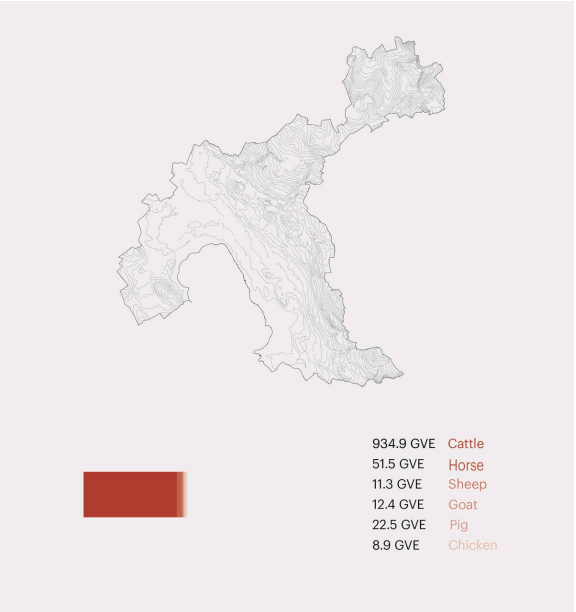
HITTNAU
695.5 cattle
0.5 pig
65.2 chicken



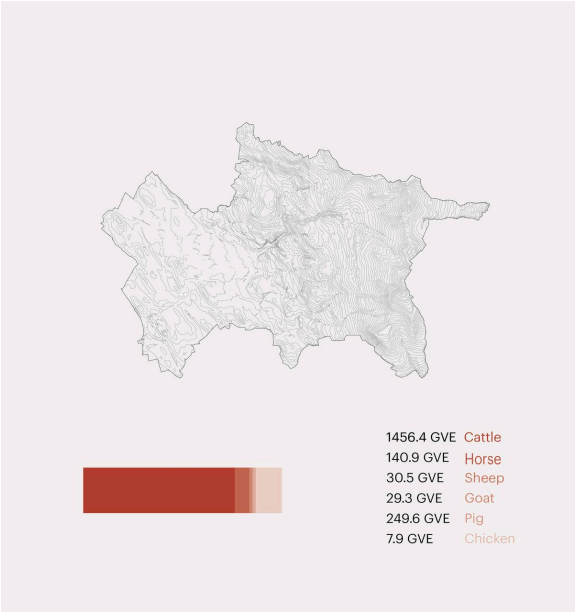
BAUMA
852.7 cattle
80.4 pig
223.1 chicken



FISCHENTHAL
907.8 cattle
25.1 pig
4.5 chicken



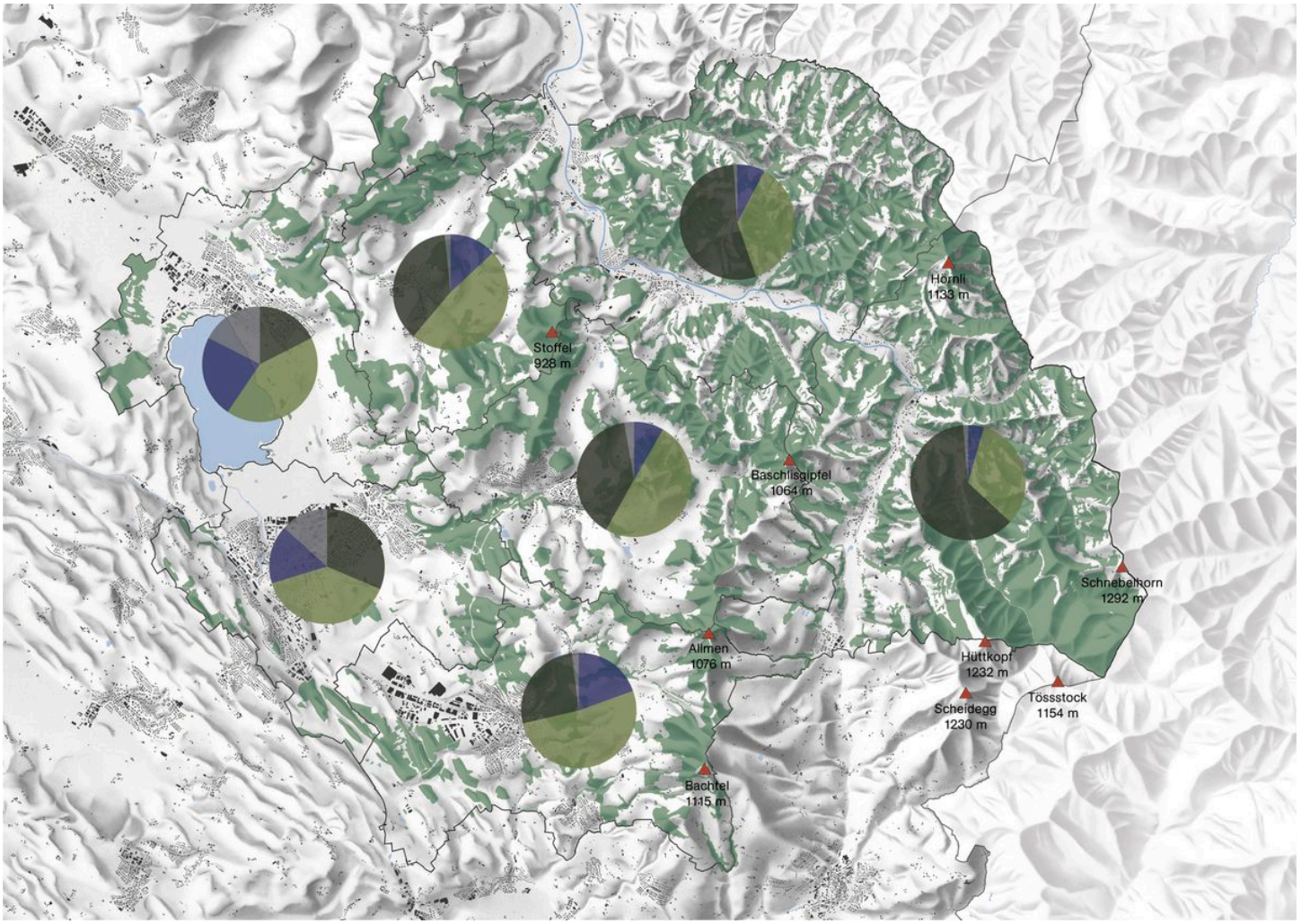
PFÄFFIKON
934.9 cattle
22.5 pig
8.9 chicken



HINWIL
1456.4 cattle
249.5 pig
7.9 chicken

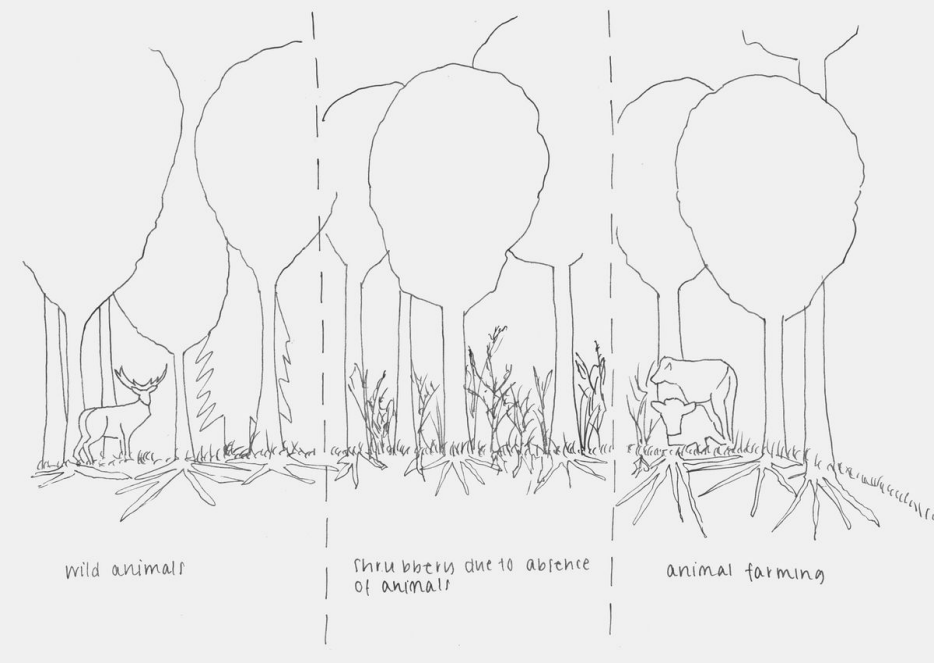
Coming back to the cattle instead of counting human inhabitants we hereby want to show the livestock shares of the different municipalities. Generally cattle overweigh clearly compared to the other species. So the region seems to be predestined for cattle husbandry. One exception is Bauma, where a lot of pigs are being kept. But even this is in close connection to the cattle husbandry: pigs are fed with byproducts from dairy production. And since many of the cows in the Tössbergland are also kept for milk, and cheese is a typical regional product, pigs make sense there. If we now convert these numbers into *Grossvieheinheiten,* cattle again dominates in all municipalities.

Steep Hills and Forests: a Potential for Silvopasture?



The percentage of forest per municipality is stabilised through subsidies which aim at minimising the bush cover.

- Other
- Forest and Woods
- Agriculture
- Settlement area and road network



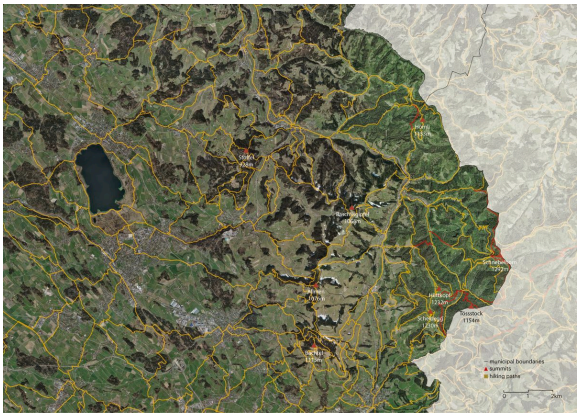
As wild animals have curated forests in the past, cattle could do so nowadays.

Coupled with the steep slopes comes forestation. The region has been heavily forested before the Middle Ages where big amounts of the wood stocks have been chopped for heating. In the following people began to realise that they have to cure for the forest, otherwise it will be gone completely and big reforestation projects have been launched. Now the forests are even growing again in mass. There is even a law that prohibits the cutting of forest which overgrows private land. To countertrend this development and introduce a conscious and careful restriction silvopasture systems could be implemented. ETH Zurich has conducted a study to find out about the impacts of cattle in forests. Foresters are concerned about the young vegetation and renewal of the forests, but the study has proven that a sensible combination of cattle and forests is absolutely justifiable. Others even argument, that cattle strengthen the bigger trees by eating away the younger ones, because the roots of the bigger ones then can grow unhindered.

The Tössbergland as Recreational Destination

Strollers and hikers at peak Bachtel enjoy the unique view over the landscape.

Interwoven landcape of agriculture and leisure.



The Zürcher Oberland offers a network of hiking paths.

The Zürcher Oberland and especially the Tössbergland is a prominent regional recreation area for city dwellers. The touristic potential of the area characterizes the space and shows its connection to the Unterland. However this magnet function for tourism also includes the ruthlessness of littering—seemingly not realising the major impact on cattle it has when consuming plastic or metal that was thrown into their pastures. A positive potential in this touristic landscape overlapping the agricultural productive landscape lies in the consciousness of the city-dweller for the processes behind the products sold in supermarkets. Hikers are tempted to buy homemade specialities from farmshops supporting farmers directly without intertrade.

Specialisations for Survival: Three Case Studies in the Tössbergland

1 Hof Bodengut: Direct Sales

The Hof Bodengut is a family run business located in the Bachtel region of the Tössbergland. The vast farmgrouds have been purchased by the family Rüegg who transformed it into their dream. Farming for them means to work with animals, regarding their needs and providing the space they need for a worthy life. An elaborate and modern redesign of the big barn is now the winter residence of their cattle. The whole summer long the cattle spends its time on the pastures spread over the whole territory of the Tössbergland. This because the family has decided to produce their meat under the label Natura Beef. Additionally the cattle grows up in Mutterkuhhaltung, which means that calves stay with their mothers and the herd feeling rests ensured.

“We live with the animals from the animals”—Judith Rüegg

But not only on their own farm in the upbringing Judith Rüegg cares about the handling of her cattle. She has decided to organise the slaughtering and butchering herself, instead of relying on a big retail market like Migros or Coop, where the cattle would end up in a huge slaughterhouse somewhere in Switzerland. Judith practices a direct marketing, where she has made a contract with a local butcher who slaughters the animals and then processes and distributes some of the meat himself. The rest he gives back to Judith who prepares it to the wishes of her customers and sells it directly to them. Recently they have even installed a small farm shop where passer bys can purchase their specialties.

Outlet on the farm for cattle

Brushes and lying areas
provided for animal welfare.

In the Mutterkuhhaltung Bodengut also has
an own bull for the production of offspring.

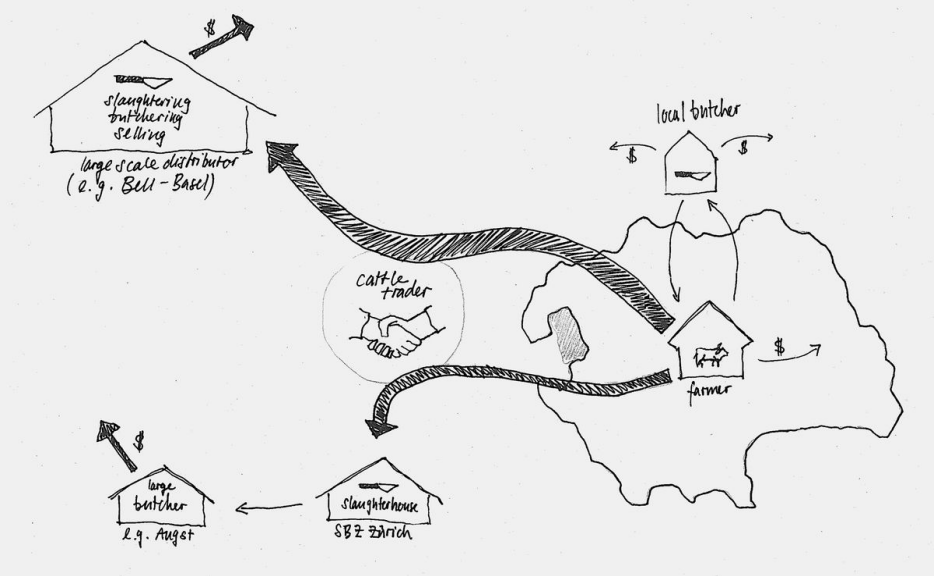
“We are very proud of the fact that our products are made with a lot of passion with regional aspects.”—Hof Bodengut.

Because Bodengut values their independency high they need to stay in contact with their customers and advertise their products well to the public. The elaborate website and Instagram account show this very well. Additionally they regularly host events shaped around the wishes of their clients, ranging from brunches to weddings. Their agricultural (here mostly meat) production does not suffice to deliver enough income for them. Additional incomes from events and the husbands external full-time job are absolutely crucial for them to survive as a farm.

It seems to be about finding your niche within this industrialised sector. Crucial to this system is that it works only as a niche, if anyone would practice such a production the current demands would not be met. Agriculture has changed to meet the ever growing demands of the masses. But what if we question the consumption and ask ourselves, whether the current prices and masses are justifiable?

Potentials
Through events with people from the Unterland and personal ordering/distribution consciousness for the processes behind the commodity meat can be raised.

Problems
The farm has decided to specialize, in order to survive economically. Although it seems like a good solution, one has to consider that this mode of production works only as a niche product and the demand of the masses are not being covered.



Cattle farmers in Tössbergland have three options for trading: either selling the cattle to a large scale distributor, giving it into cattle trading, to a larger slaughterhouse, or investing into direct marketig.

2 Alp Schnebelhorn: How Subsidies Keep It Going

Since 1896, the Landwirtschaftlicher Verein Pfäffikon-Hittnau-Russikon has been running a Sömmerungsweide on the Schnebelhorn Alp—with 1292 m.a.s.l. the highest point in the Canton of Zurich. About 140 cattle spend their summer on the alp every year. The summer grazing area comprises a fifty hectares of pasture land in the canton of Zurich and another twelve hectares in the neighboring canton of St. Gallen. In addition, there are about sixty hectares of forest.

“The Schnebelhorn only exisits thanks to the large amount of subsidies.”—Landwirtschaftlicher Verein Pfäffikon-Hittnau-Russikon.

In the past, farmers had to pay per day to the farmer for looking after their cattle on the summer pasture. This became more and more expensive, as the farmer of the alp itself had to pay for repairs at the alp and thus more and more lowland farmers thought about not supporting the concept of the *Sömmerung* any longer. To prevent the summering methods from disappearing completely, the Federal Council decided in 2014 that the farmers would be financially supported by alpine pasture contributions. However, the Federal Council decided to support the farmers not only for cultural and conservation reasons, but a major factor was that winter ski areas (which are alpine pastures in summer) must be grazed, otherwise they would be covered up with shrubbery and skiing would no longer be possible.

Another aspect addressed to the idea of the Swiss *Sömmmerungsweide* is the discussion about fear concerning weight loss of cattle during summer periods on the alp. As there is no additional feed except for meagre meadows. However, in dialogue with the president of the Verein, we depicted the concept of compensatory growth, meaning that it is true that some weight is lost during the stay. However, after the *Sömmerung* the cattle utilise fodder that they receive in the barn (including silage) in winter much better and can compensate or even over-compensate the losses.

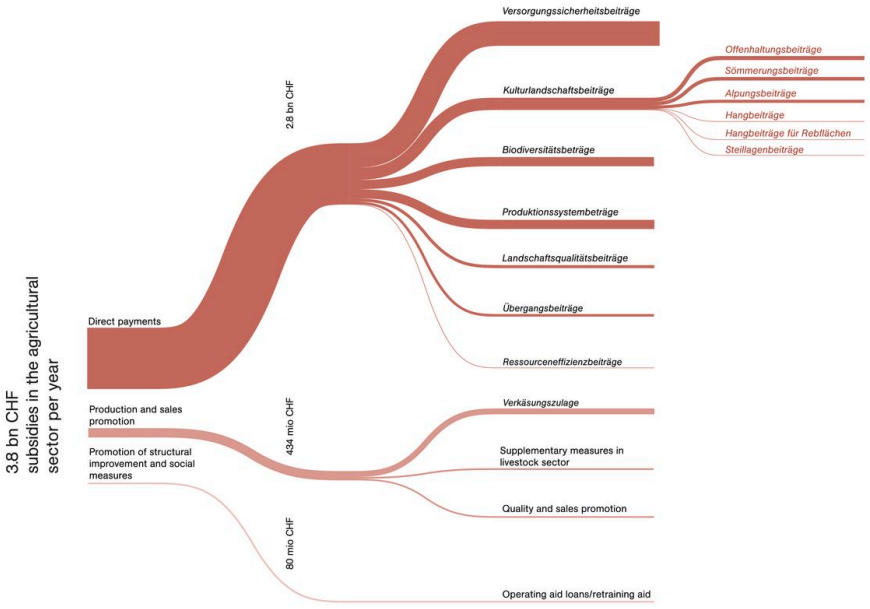
Alp Schnebelhorn (1292 m.a.s.l.), the only official *Sömmerungsweide* in the Canton of Zurich.

Shelter for cattle during their stay at the Sömmerung Schnebelhorn from March till October.

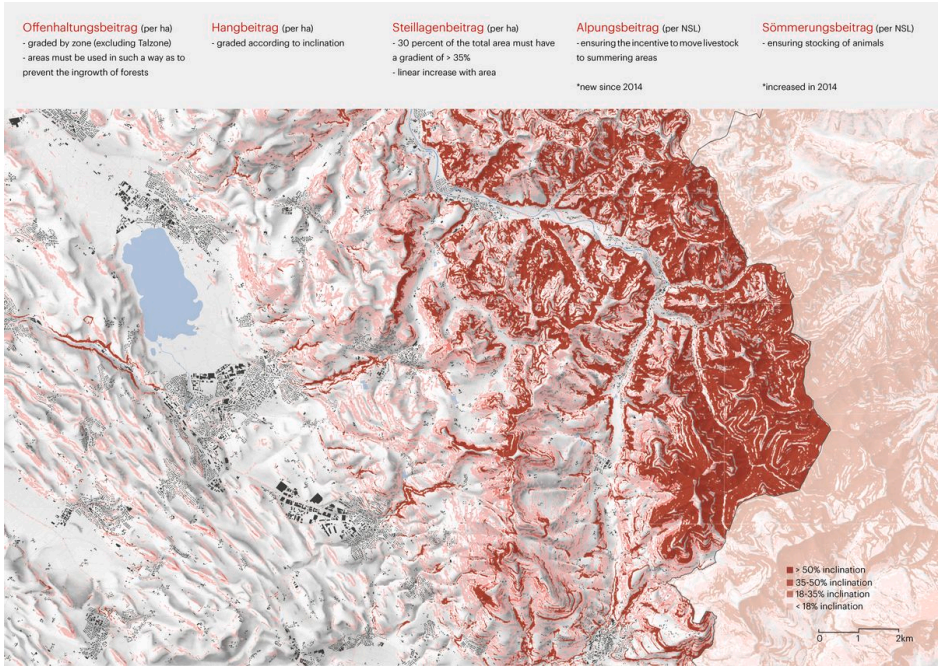
Shelter for cattle during their stay
at the Sömmerung Schnebelhorn
from March till October.

Potentials
Cultivating the steep areas with cattle is nearly the only option to make these lands valuable in an economical sense, as it has been proofed in history. Otherwise forests would claim this land for them and overgrow the Swiss cultural image.

Problems
The complexity our system of subsidies has reached is not productive, but sometimes even destructive, when different interests are sustained that work against each other.



The Swiss State engages in agriculture through subsidies. They bear vast potential for effective changes because of the monetary incentives they create. Source: Bundesamt für Landwirtschaft, 2020.

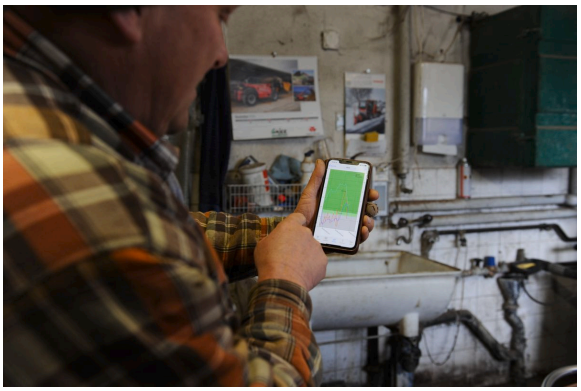


Especially the subsidies for steeper regions take hold in the Tössbergland, as seen in this map showing the inclinations of the territory. The steep areas are in urgent need of these subsidies to keep them running, otherwise the forests would claim that land for them. Another topic adressed by the subsidies is the Landschaftsbild which is often discussed talking about feed storage for animals as these “Heuballen” and silos, which might disturb a desired image. Source: Bundesamt für Landwirtschaft, 2020.

3 Karl Bertschinger's Farm: Animal Welfare Through Smart Farming?

Karl Bertschinger owns cropland used for mostly fodder production and some areas which can only be used as meadows and pastures. On his farm on average 150 cattle stay for around a year—he is responsible for the upbringing from calf to the already inseminated cattle. Shortly before birth, the soon-to-be mother cow returns to the dairy farm close-by, where it has come from as a calf. During the cattle's stay at Bertschinger it has a regular pasture outlet, but is also fed with some of the fodder, silo maize is typical for the region, which Karl cultivates himself on his cropland.

Since the beginning of 2019 the farm is equipped with ear tags from cowmanager.com, enabling twenty-four seven real-time observation of the livestock. The basic equipment costs 4500 CHF—in comparison to this, a missed oestrus that costs the farmer 200 CHF, which could be avoided by the real-time observation.



User-friendly apps on smart phones to ensure accessibility for everybody.

E-Tag that can be installed and reused various times.

This type of smart animal farming is a frequent practice in dairy farms, due to the importance of tracing their health and monitoring their fertility in order to inseminate at the right moment. In the meat production smart animal farming is mostly used in mother-cow husbandry. Is smart farming expandable to other types of animal farming? An important tool could be to be able to compare the wellbeing of animals within a herd with the same age, instead of comparing one animal's wellbeing with a reference value. Livestock numbers including the data on births for example have been systematically written down since long, but only since recently this data is recorded digitally.

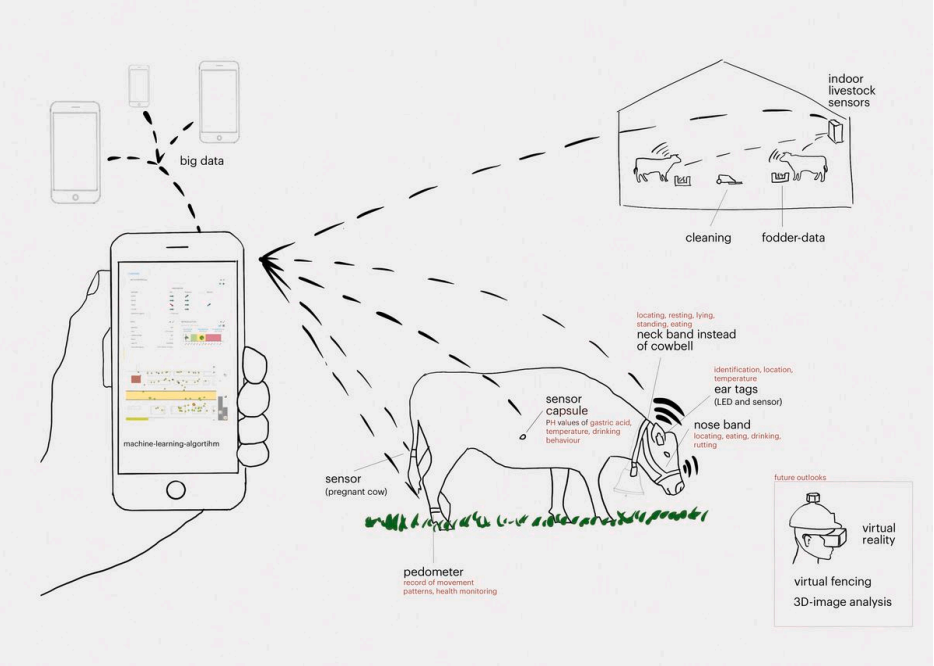
"In Switzerland every cow has their own digital identity."—Karl Bertschinger

The question arises what this enormous technisation of animal farming means to the farmer himself or herself. How far will the profession of the farmer disappear and develop into a management task? Like in any other profession nowadays there is also a call for digital awareness raising in the agriculture sector.

Smart animal farming has shown to be a popular means these days to increase efficiency. Naturally it immediately opens up ethical questions thinking of “digitalising” animals. But research shows, that these digital measures usually contribute positively to the animal wellbeing as it helps to identify hurt animals more quickly for example. Wearable technology on livestock monitors their health, location, and wellbeing with the result of significantly increasing their yield. E-tags clipped to the ear constantly measure body temperature. Even a cow’s breath can be analysed for signs of nutritional problems. Armed with the ubiquitous smartphone, a farmer can use apps for on-the-spot diagnoses such as detecting metabolic diseases in cows. Robots are capturing vast amounts of information—all this data will synchronise with the farm management software to provide the farmer with an overview of the health of the entire herd as well as specific actions for individual livestock.

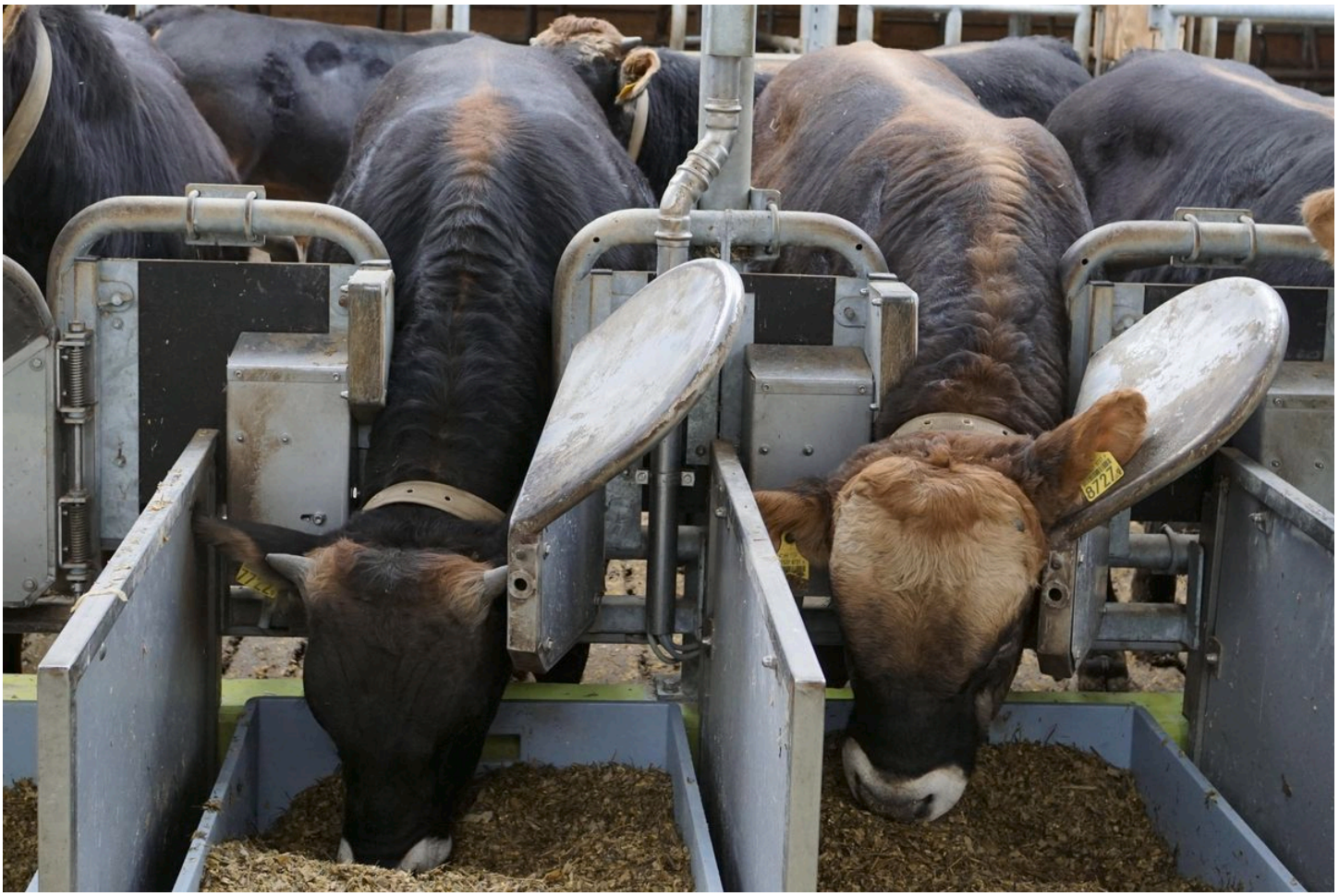
Potentials
Smart farming is being developed to increase efficiency and often also addresses topics of animal welfare.

Problems
“Digitalising animals” can be ethically questioned, since it puts the commodification of live beings to a next level. Additionally, these new techniques set radically new demands to the farmers.



New technologies such as smart farming have to be considered and evaluated not only by their economical profit, but also by their welfare benefit for animals. Source: AgroVet-Strickhof, 2019.

Designing Animal Welfare



The agricultural sector in Switzerland, heavily dependant on subsidies, is in crisis. While the subsidies aim at maintaining the self-sufficiency rate and the conserving a bucolic landscape, other values are left out, such as animal welfare. How could a shift in our everyday diet make a change?

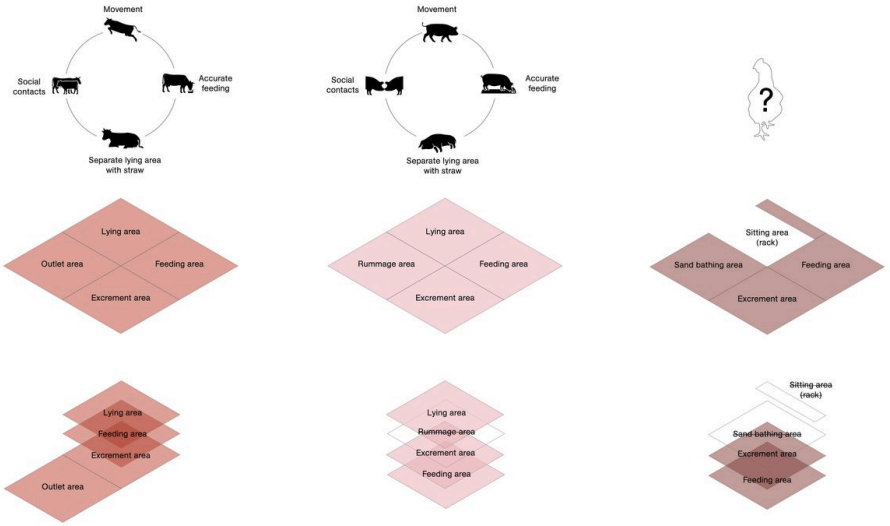
Now and in the future the incentives created by subsidies are not sufficient to save the farmers from other external factors by the free market economy. Analysing the current situation we identified certain tendencies, which could lead to a future mostly driven by economic concerns. The market pushes farmers to more efficiency, especially large scale retailers demand a constant readiness for delivery. Therefore many small businesses have to merge into bigger ones, in order to survive. Otherwise farming often get's hardly profitable or they live basically only by the subsidies they get.

Increasing efficiency could mean for the Tössbergland that farmers neglect steep areas, because they are very work-intensive to be cultivated. In that case the steep areas will be taken over by the forests and the agricultural work will concentrate in the flatter areas, arranging the work densely packed together. Different interests in the flatlands will start to compete and conurbation follows. Since all the arable surfaces are needed for crop cultivation for human food, animal farmers will no longer be able to keep their livestock outside and tend to stack it in industrialised facilities. Because they will all need to be provided with fodder from crops and can't feed anymore from the meadows, a lot of fodder will have to be imported. This increases emissions especially in the countries where currently most of the popular fodder, like soy beans, comes from, like Brazil or Argentina. Whereas emissions within the country might even sink compared to their productivity, for concentrated animal husbandry it is usually the most resource-efficient way of animal-keeping. But in that case usually the animal welfare diminished heavily. This invisibility of livestock to the average consumer is already fact for lots of chicken and pigs kept in mass livestock farming facilities and the trend could take over also cattle husbandry. Animals in general will be even heavier bred for more efficiency. The consciousness of the consumer for the life of the animal behind their product will certainly decrease even more and consume will be practiced even more carefree. The money a farmer gets for a kilogramme of meat will decrease more and more, because retailers have all the power and strive for profit. Most likely Switzerland will still not be ready to give up on their image of an Alpine farmer country and it will still be cultivated in a small scale for touristic reasons, sustained by the State or the revenues through tourism.

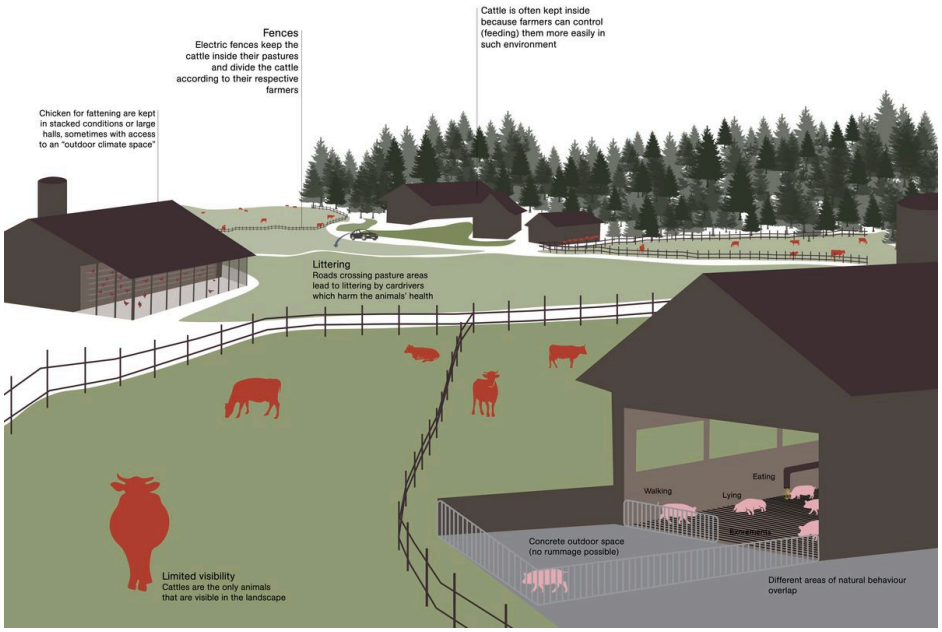
The Swiss citizens will have to decide whether to leave agriculture completely to the free market or to radically redesign the monetary support system. Either way we have to consider the consumers and big retailers power for change, because they regulate the demand.

"Animal welfare is all well and good, but Swiss animal products will become even more expensive compared to foreign products and we will be replaced by imported products (which are produced under poor animal husbandry conditions abroad)."—Karl Bertschinger.

Representative surveys repeatedly show that the vast majority of the population demands meat from “species-appropriate animal husbandry.” This is in stark contrast to the fact that the majority of our consumption of animal products today is covered by industrial animal husbandry. The reasons for the strong discrepancy between demand and supply are manifold and range from a lack of knowledge and awareness to the multi-billion dollar marketing of the meat lobby, which is still reproducing and cementing the myth of *Heidiland* animal husbandry. The initiative *Keine Massentierhaltung* from 2018 aims to put an end to this and shows how urgently this unethical an unsustainable development is discussed these days.The initiators demand lower maximal livestock numbers per farm, more space for the animals in general, no more tether husbandry and conditions for a more natural behaviour. Their motives lie in quests for more animal welfare and ecological topics.

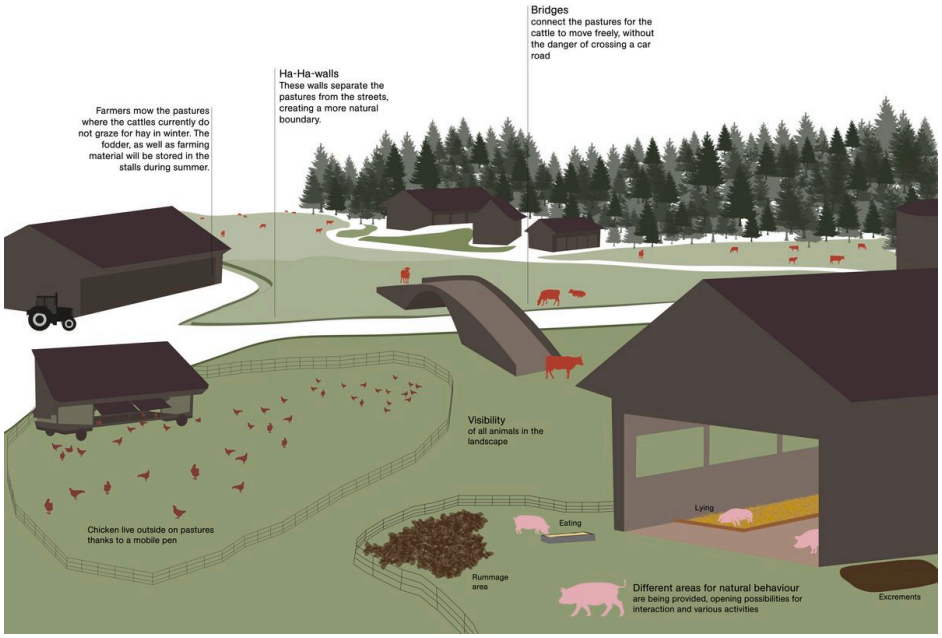


To increase efficiency, areas dedicated to the animals are often minimised, which results in an overlap of the different living environments an animal naturally uses—this leads to a restriction of their natural behaviour. Source: Bundesamt für Veterinärwesen, 2010.



The current condition: livestock is mostly invisible
and animals lack space to live their natural behaviour.

We need to take the needs of animals more seriously and try to give them more dignity. Is a more ethical cohabitation of animals and humans possible? A first step would have to be the abolishment of mass animal husbandry. Any creature needs to have access to fresh air and grown grounds. For chicken this means no more halls with possibly some “outdoor climate areas” added, but really a life outside, on the meadow, with space for picking, scraping, and sand bathing. Methods like the “chicken-mobile” exist already and work well, but are mostly implemented only for laying hens, whereas chicken for fattening are barely kept outside. Also pigs for fattening are mostly used to paved or even grilled floors, with no space for rummage and mostly metal fences around them. We demand that also they receive their appropriate areas for natural behaviour like a rummage area where they can test their strong noses by digging into the ground. Especially those two currently marginalised species demand more equality, more space and visibility in our landscape. For cattle the situation is not as bad currently, but still we would like to imagine a future even better. Cattles’ intrinsic needs for long distance movements and grazing outside could be satisfied by letting them wander around in herds, searching their food for themselves, whereas pastures would no longer be parcelled land but vast green areas. Unpleasant encounters with waste from passing cars and long transportations by car for the cattle could be avoided by this and fences could be replaced by natural boundaries or “Ha-Ha-walls” like in the historical english landscape gardens.



Is a more ethical cohabitation of animals and humans possible?

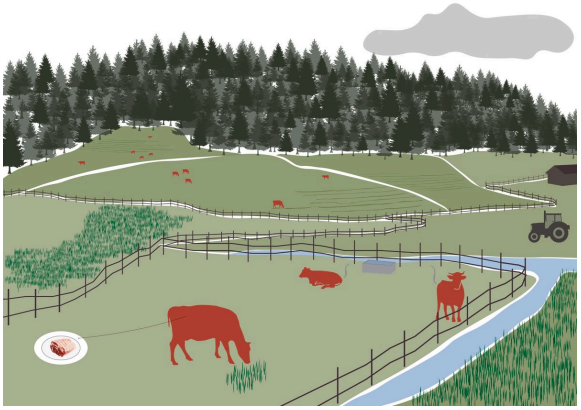
Imagining a Vegan Landscape

Meat production is a very resource-intensive industry and is often criticised for the high emissions caused. Also the Initiative *Agrarlobby stoppen!* calls for more ecological consciousness in the agricultural sector.

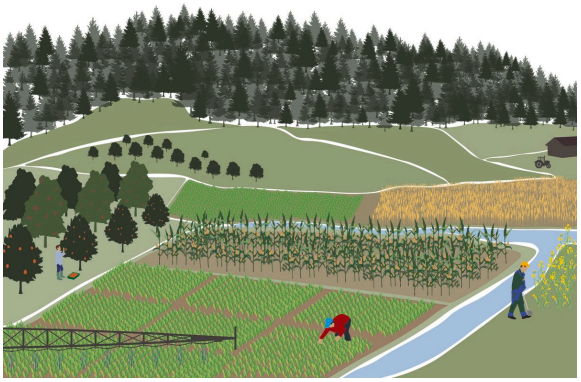
In order to achieve a more ecologically sustainable agriculture we might have to renounce entirely on the commodity meat and replace this great source of protein, vitamins, and minerals with a more diversified vegetal diet. A lifestyle without meat is proven to be perfectly doable by many vegetarians and vegans already today.

Radically reconsidering today's animal territories allows to envision a new landscape: the vegan landscape. Many crops we cultivate, as maize, grain, barley, and soy, are cultivated as fodder for livestock as well as food for people. So many of the arable lands, that are now used for fodder cultivation could be used just as well for the cultivation of food crops. Also the imports for animal fodder can be completely omitted and therefore externalised emissions reduced. New breeds for crops will allow farmers to cultivate now still difficult types for their regions in the future. Our landscapes would be cultivated by a big variety of crops to cover all the nutrients humans need. Fruit trees and vegetables provide vitamin, nut trees and legumes provide protein and wheat, potatoes provide calories. Lacking the natural fertiliser we gain from the excrements of cattle, now chemical fertilisers would have to be implemented to keep the soils nutritious.

"A solution for non-chemical fertilisers would actually be sewage sludge, as we did in the past. But today this is contaminated with antibiotics and co, making it unusable. Maybe a topic to examine?"— Karl Bertschinger.



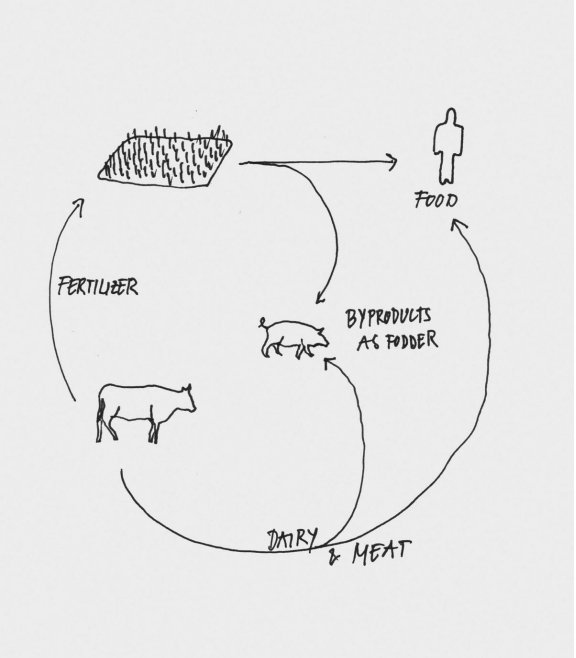
Current condition



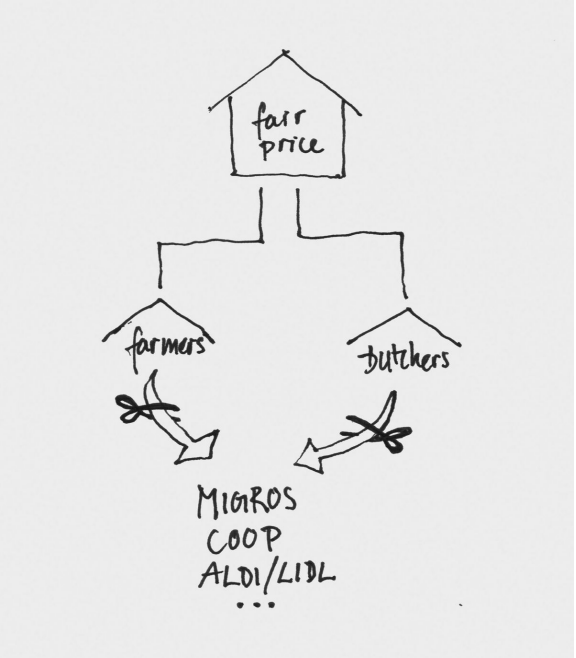
Imagining a vegan landscape: If using arable lands to feed the Swiss population instead of using it for animal farming the landscapes would drastically change.

Towards Animal Farming as a Common Good

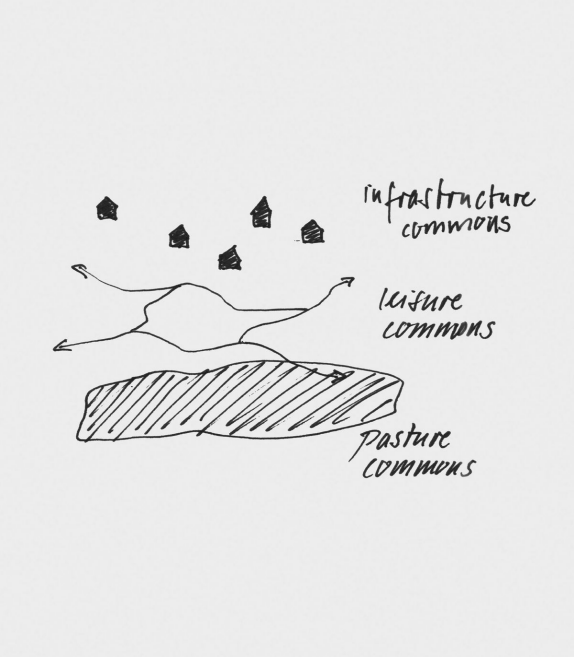
Reducing meat consumption can enable the emergence of new and diverse landscapes and practices based on coexistence and collaboration between human and non-human communities.



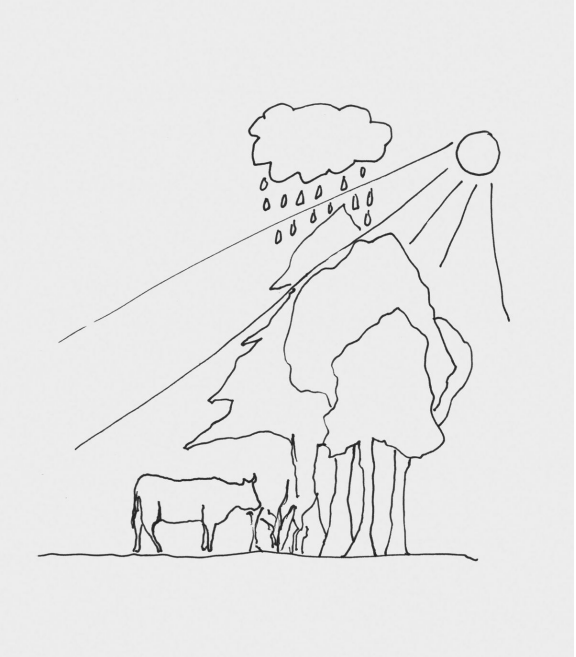
Dietary shift



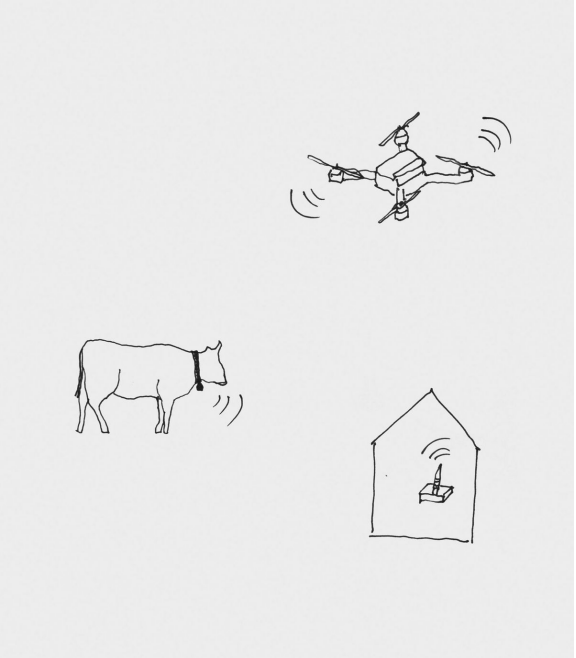
New networks: Direct sales instead of long supply chains



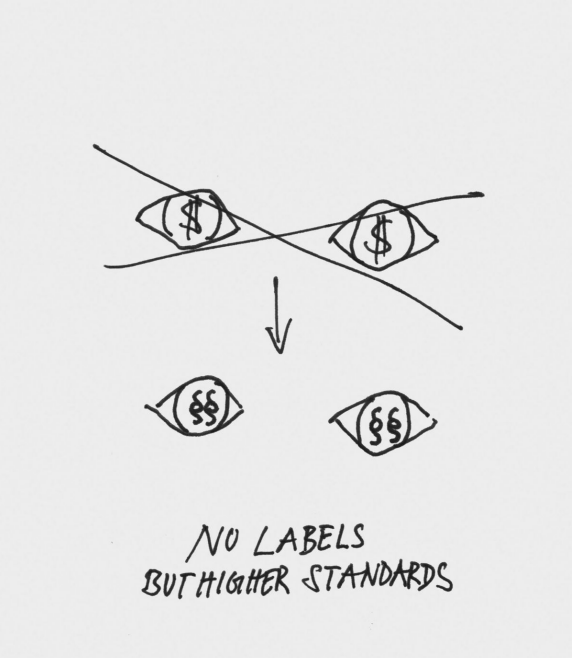
Pastures, leisure, and infrastructure as commons



Silvopasture



Smart farming



New legislation

Dietary Shift

A dietary shift from a meat dominated diet to a more diversified vegetal consumption will be established, using all the potential crop cultivation area for human food. Animals will be held only to such a degree, as no additional fodder has to be produced for them. Roughage recyclers like cattle will feed from meadows, wich cannot be used for crop cultivation and simultaneously cattle produce natural fertiliser (excrements) for the crop fields. Animals like chicken and pigs will eat the surplus from human food production, byproducts from cheese production, and oil press. Therefore livestock in general is included into a smooth cycle in the agricultural production. Importation of fodder can be completely omitted.

New Networks

A new cooperative structure between farmers and butchers will establish to ensure fair prices for meat production. Through this the producers gain independency from the big retailers and can ensure more animal welfare, controlling all the moments in the production chain. By this we are proposing a counter-solution for the big industrialised, anonymous facilities. Smaller businesses will be able to survive through the protection of the cooperative framework and still provide food for the masses.

Pastures, Leisure, and Infrastructure as Commons

On the level of land use the cooperatives are organised in a new governance structure: a network of co-working on productive commons. Whereas farmers will share big plots of pastures for herds of cows, the butcheries will share the facilities for the slaughtering process. Farmhouses and butchers still remain in private hand.
A second layer of commons addresses the shared use of the landscape for leisure, by people from the city enjoying the productive cultural region from another perspective.

Silvopasture

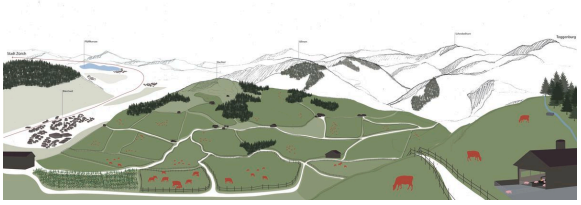
The cows will graze in herds and move freely to where the grass is high, sustaining the biodiversity of certain areas. Furthermore, forest maintenance will include the deliberate use of livestock, leading to punctual silvopastures. Cattle will find shelter under trees on the pastures and drink from natural water sources. Other animals like chicken can be kept in combination with high stem trees for fruit and nuts.

Smart Farming

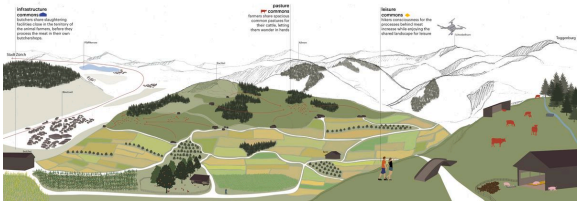
Smart animal farming will provide the means for the herdsystem, because farmers will be able to track their cattles by GPS and be alerted if the cattle is in trouble. Virtual fences keep the cattle within the pasture boundaries and drones deliver real time images of the herds, for identification of special events like birth. Future farms will be digitally connected for a great exchange of knowledge and data collection which helps them to increase their efficiency.

New Legislation

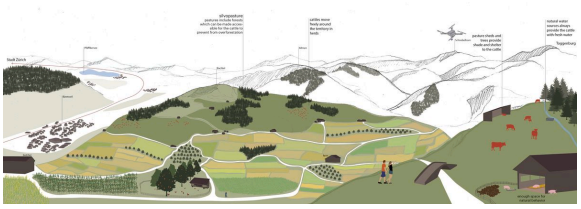
On a policy level more concrete measures for animal welfare will be included into the Tierschutzverordnung, in order to detach animal welfare from economic incentives. Labels will lose their meaning, whereas living standards for animals rise in general.



After the age of the carnivore the landscape will be redrawn into a future of multiple realities.

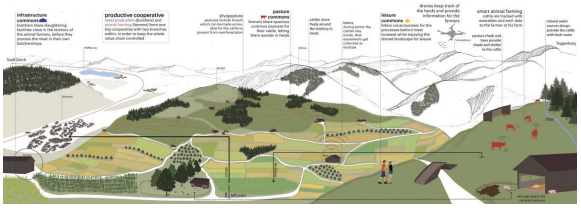


Reimagining the idea of the commons.



A new encounter with nature: silvopasture with benefits for the animal and the environment.

Smart implementation of smart farming: animal welfare and efficiency.



The transformation from a meat landscape into a future of multiple realities.

A cow lazily swishes its tail, now and then perceiving a distant buzzing. The drone maintains its station hovering above the herd. The images it collects are analysed with data from other animals. A few kilometres away, the farmer receives an alert, one cow must be giving birth. Driving out to the farm he leaves his car at the edge and enters the realm of the cattle jumping over the broad street ditch. As he approaches the cow in labor with his GPS tracker, he meets two hikers resting under the shadow of the trees next to the pasture. Excitedly they follow the farmer who is checking up the newborn. Cattle from all sorts graze around it, while he marks it as one of his.

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