

The Farm and the Farmer

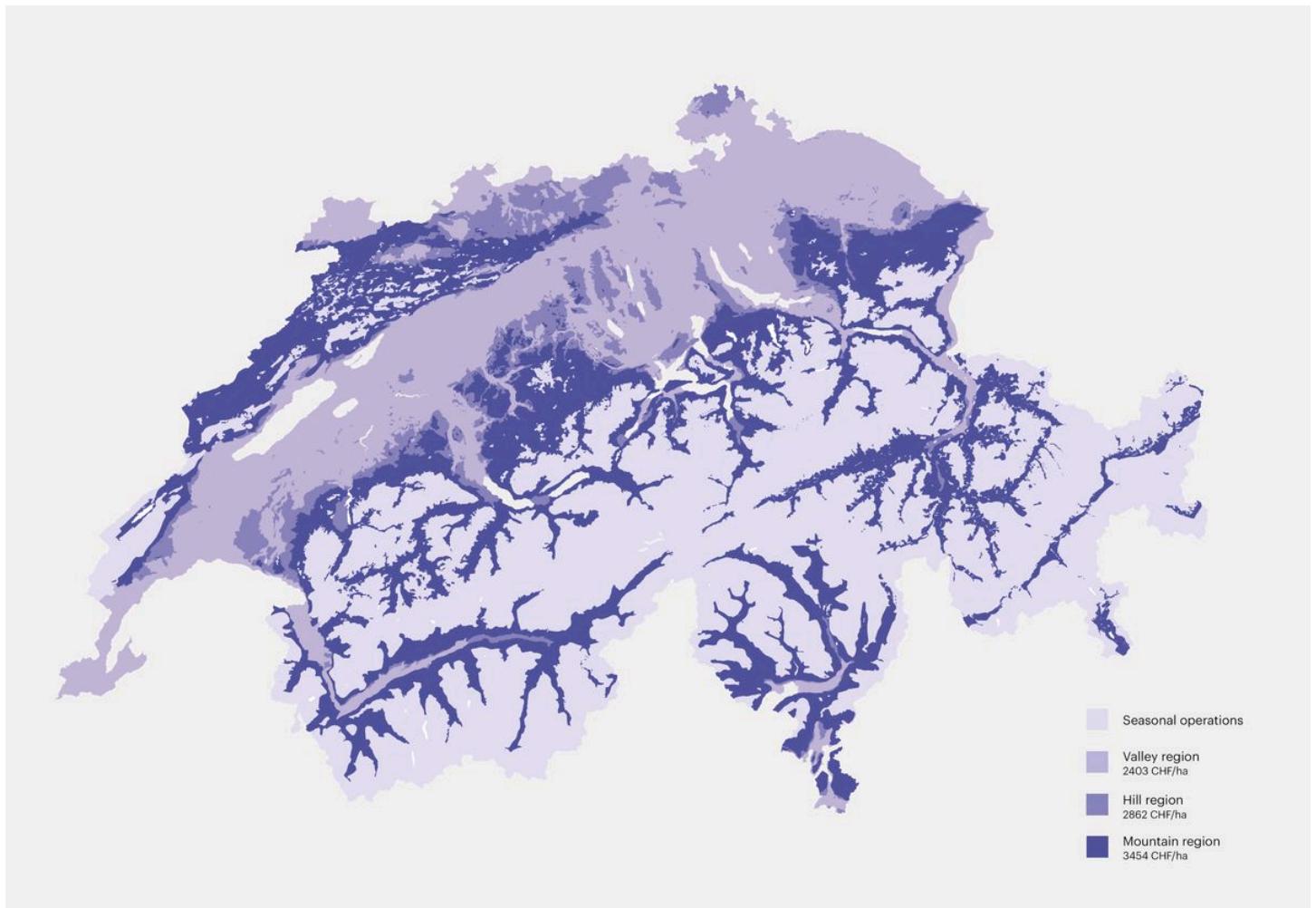
The Landscape of Fair Milk

Leonie Füssler, Ramon Oetterli, and Patrik Willen



Switzerland is internationally known as the land of milk, chocolate and cheese. But the supposedly flourishing dairy industry is based on the exploitation of farmers and the massive regulation of agricultural activities by the state through direct payments. In this research project, we dive into the realm of milk, try to give farmers a voice and explore the potential of fair milk.

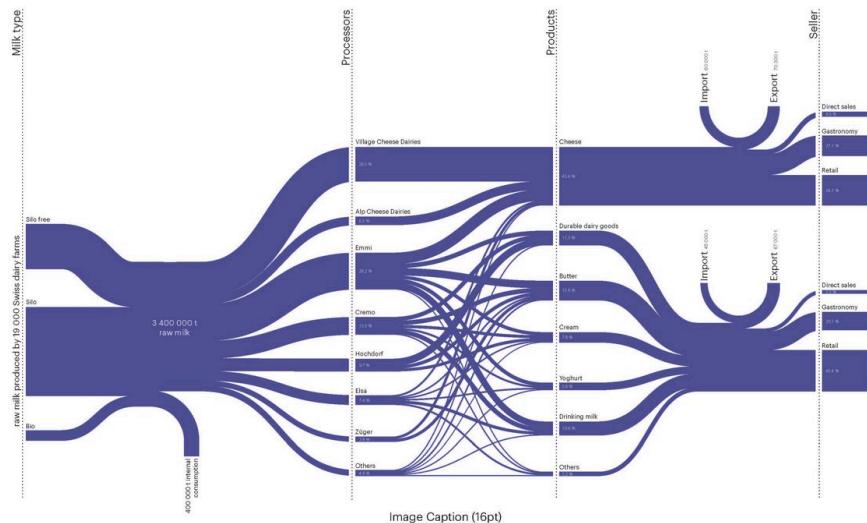
The Land of Milk and Honey



19,000 dairy farms produce a total of remarkable 3.4 million tons of raw milk throughout the year on Swiss territory. Most of it is processed by a few well established big players in the market: Emmi, Cremo, Hochdorf, Elsa and Züger. These corporations are tightly entangled with the major food distributors in the country, which consolidates their domination in the industry and allows them to set the milk price standards. Only a third of the milk is processed by smaller village dairies, of which approximately 6.5 % are located in the alpine region and whose production focuses on cheese.

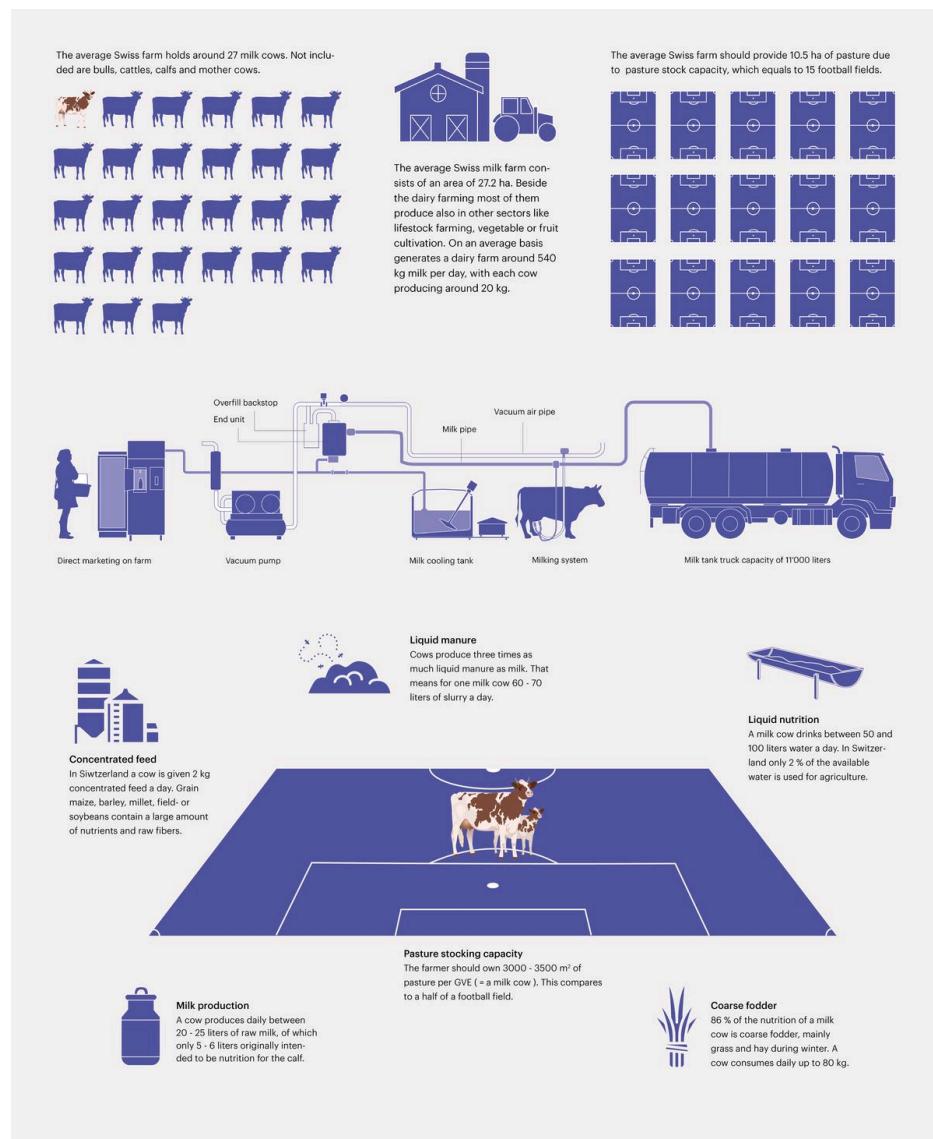
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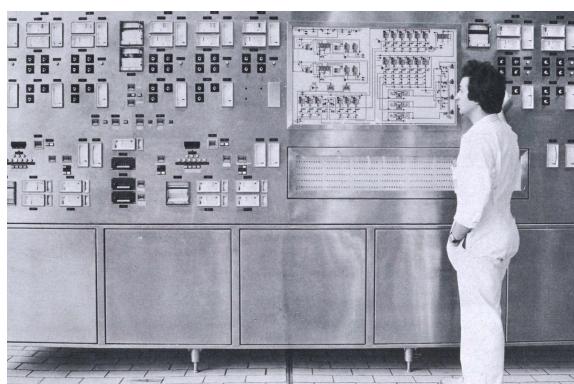


Switzerland's dairy processing network is characterized by few dominating players.

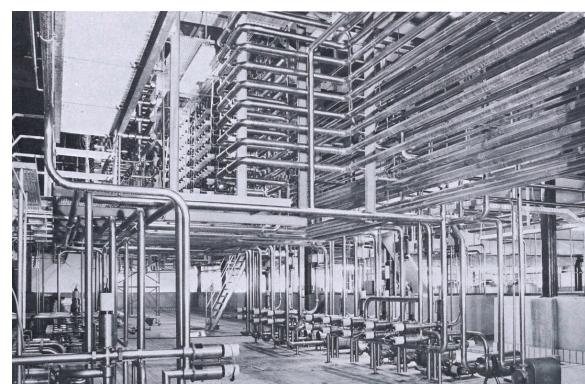
The Average Swiss Dairy Farm



Toni Molkerei: The History of a Fallen Giant



In its prime, the Toni Molkerei set new standards in milk processing.



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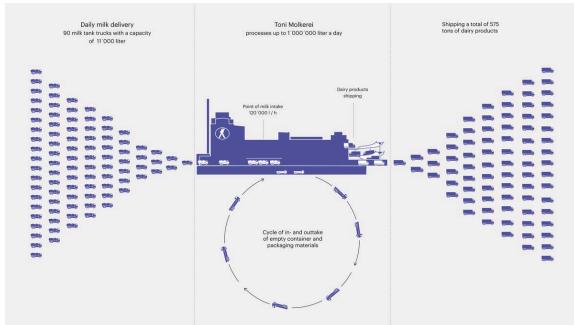


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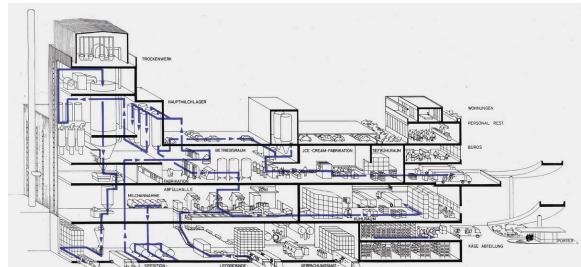


In its prime, the Toni Molkerei set new standards in milk processing.

Unlike in the old days, when the milk was processed directly on the farm, it is nowadays normally collected by a tank truck, which brings the milk to a centralized processing facility. An impressive example of such a facility is the former Toni Molkerei in Zürich West, which started production in 1977. Designed for a capacity of up to 1 million liters a day, it was the largest dairy processing plant in Europe at the time and set new standards in both scale and automation technology. Even Prince Charles came to visit the plant in 1979, which underlines the international importance of the building and surely was an unforgettable event for the 350 employees at Toni's.



One million liters a day: The enormous capacity of the Toni Molkerei.

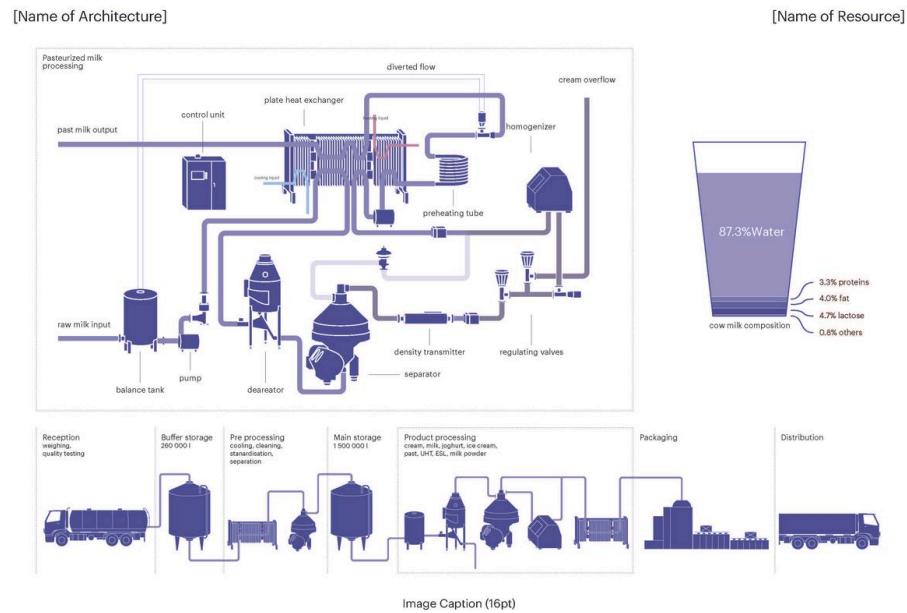


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Inside, every processing step was carefully planned and laid out, for the whole to function much like a sophisticated Swiss clockwork. In order to avoid slow vertical transportation, every floor of the building was made accessible by truck what resulted in the construction of the iconic ramps attached to the north end of the building.

To produce pasteurised drinking milk, three most important steps are necessary: Separation, where the cream is separated from the skim milk in a centrifuge, to be later remixed at an exact rate to obtain a standardised milk fat content. Homogenisation, where the fat particles of the cream are dispersed under high pressure to create a more homogeneous product and thus more pleasant drinking experience. And pasteurisation, where the milk is heated to 72 degrees celsius for a timespan of 15 to 20 seconds in a plate heat exchanger in order to kill germs and make the product longer lasting.



Processing chain of pasteurised drinking milk.

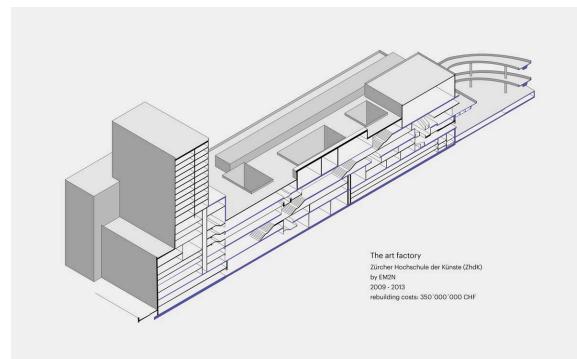
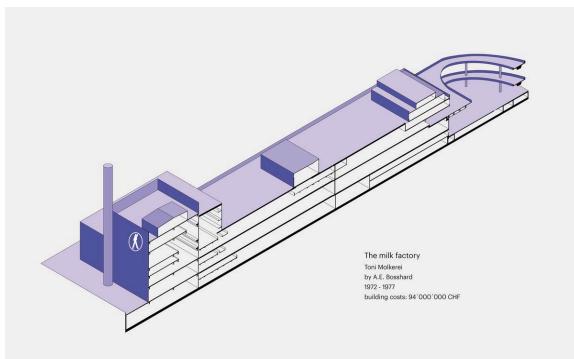


From bankruptcy to a second life:
the recent history of the Toni Areal.



In 1998, the Toni Molkerei merged with Säntis Holding AG into Swiss Dairy Food, to form by far the largest dairy processor of Switzerland. The new enterprise, however, proved to be very unstable. Reasons for this being lack of equity and an ongoing struggle with overcapacity and excess raw milk. Only four years later, Swiss Dairy Food declared bankruptcy. Most business operations were sold to Emmi and Cremo, contributing to their ascent to market leaders as they are today. The Toni Molkerei, however, was gutted and its machinery sold to companies in the middle east.

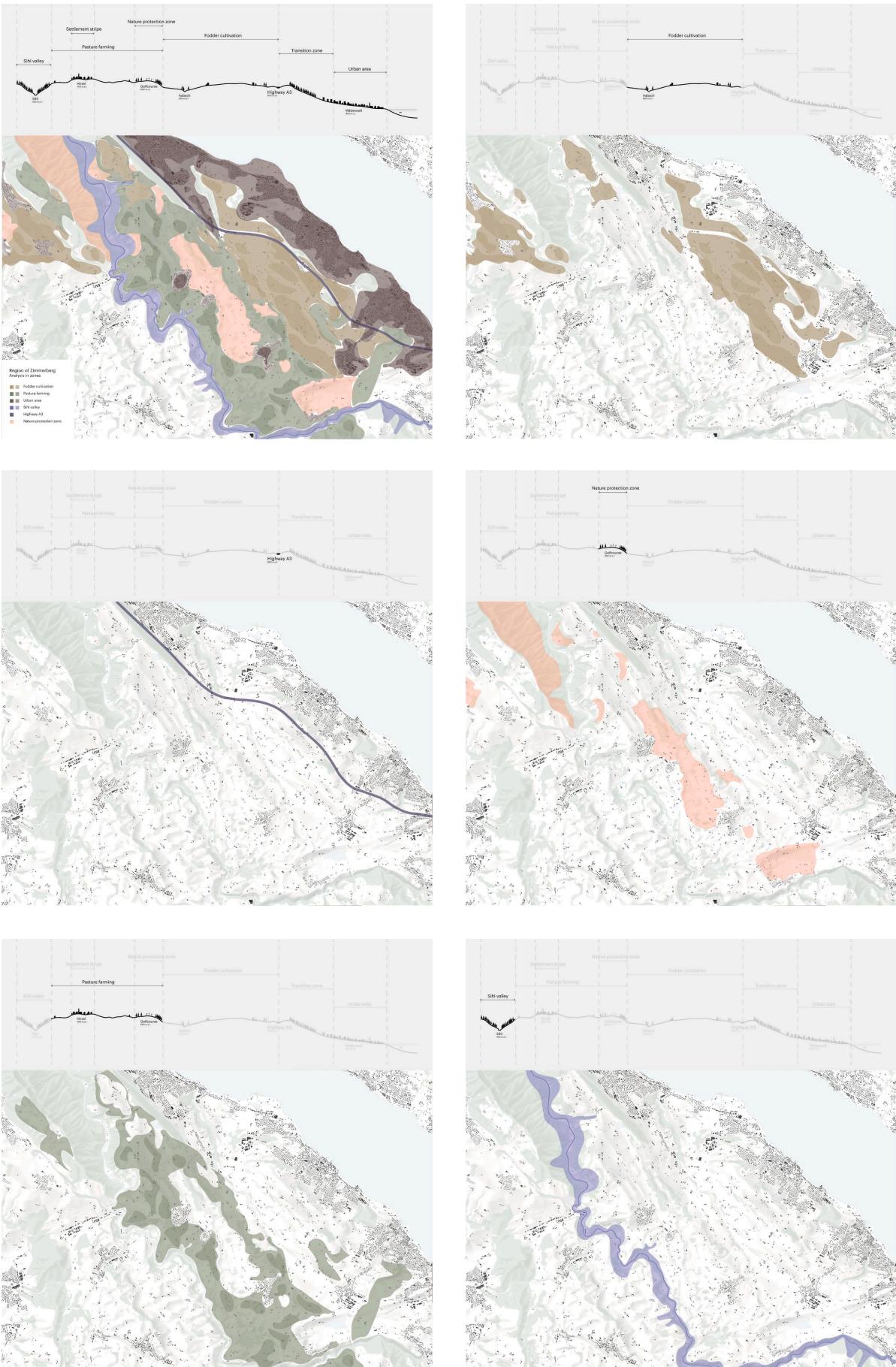
In the time of its uncertain future, the empty building attracted many cultural interim uses such as sports events, exhibitions and night clubs. Eventually, plans to retrofit the building were made. The idea was to transform the former milk factory into an art factory. The conversion based on the plans of EM2N cost 350 million, which is more than three times the original construction costs. The Toni Areal now shelters the Zurich University of the Arts (ZHdK) providing space for over 2500 students.

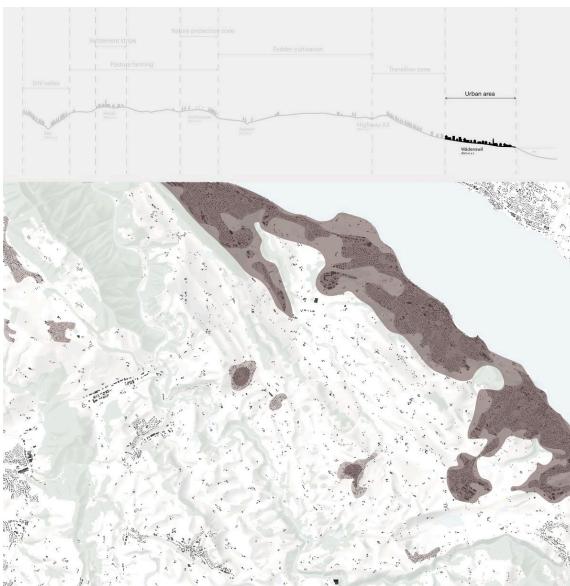


The Section Through Zimmerberg



The pre-alpine region of Zimmerberg above Lake Zurich has a repetitive landscape pattern: stripes of pastures, that are confined by both natural boarders and artifical boarders.





Along the lake shore we find a heavily urbanised band, a side arm of the City of Zurich. It has evolved in a rushing fashion and been growing towards the inner lands. Its spread is slowed down, however, mainly by two antagonists: On the one hand there is the steep terrain which occasionally still hosts active farms, remainders of the highly productive past of the shore settlements. This collision forms a transition zone where a tough fight for land between new housing settlements and agricultural practice is taking place. It becomes apparent, however, that agriculture will loose this battle. On the other hand, drawing a parallel line to the lake, the second antagonist, namely the highway A3, limits the urban spread very sharply and retains growth to a clear band along the lake shore.

On the opposite side of the highway the productive landscape begins. The flat lands on the plateau provide suitable space for fodder cultivation and large scale milk producers. The more we distance ourselves perpendicularly from the lake, however, the more hilly the landscape becomes, making it harder to farm vast monocultures with heavy machinery. The change in terrain brings along a change in agricultural use. The lush grass fields form a solid base for pasture farming. We thus encounter romantic sceneries of cows grazing in the steep terrain with ease. The lush pastures are sporadically interrupted by villages and a stripe of nature protection areas. Whilst the two agricultural zones fuzzily blur into each other, the deep scar of the Sihl Valley defines the western end of the territory very sharply. Similarly to the highway, this natural border provides only occasional opportunities for passage via bridges.



Survival Strategies of the Farmers



Against the background of our research findings on milk production in Switzerland, we approached farmers in the Zimmerberg region to explore the status quo and obtain valuable first-hand information. The discussions with farmers reveal their individual solutions to stay in business despite the tough economic conditions.

Shifting Production: From Milk to Meat

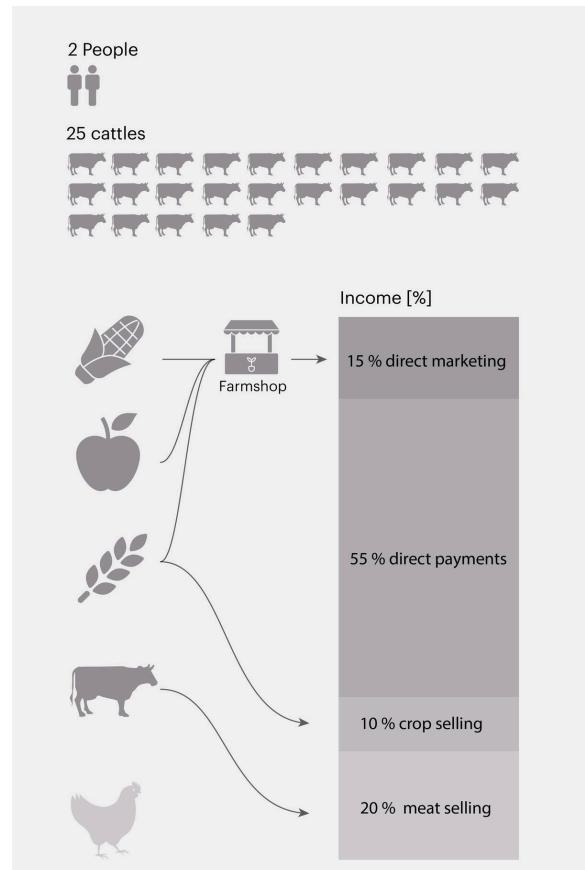


“We did not inherit the land from our parents, we borrowed it from our children.”—Peter Waltenspül

The farm of Peter Waltenspül is located next to the Sihl not far from Hirzel. He and his wife farm 12.5 hectares of land. The farm is relatively small, but the produce is diverse: spelt, barley, potatoes, corn, cider apples, walnuts, and others. Besides, over twenty beef cattle and ten chicken live on the farm. Peter uses exclusively organic and regenerative methods, always seeking the symbiosis between humans and nature.



Hintersennweid: 12.5 hectares.



Production scheme of the farm.

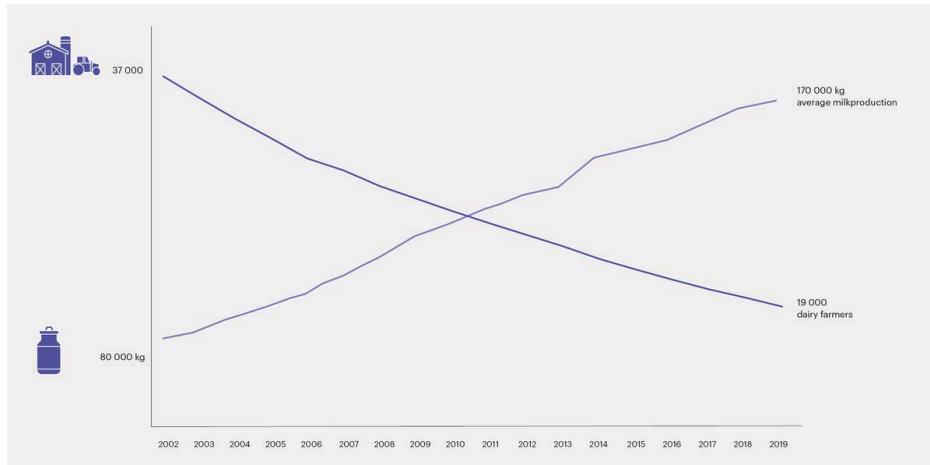
Due to its location in the Sihl Valley, large part of the land is steep, which makes it impossible to farm with heavy machinery. Matching his conviction, he therefore practices traditional cultivation methods, making use of animal work force. According to Peter, the old machinery is gentle to the soil, avoids compression and silting and reaches even the most difficult parts of the land. Furthermore the low-tech approach allows him to repair his tools.

To be independent from distributors, Peter operates his own farm shop, attracting hikers and locals. In addition, he sells his products in other organic farm shops from colleagues and in a local Volg supermarket. The beef he brings to a butcher closeby and he owns a small grinder for the grain.

Twenty years ago, Peter used to keep dairy cows instead of beef cattle. Due to the low milk price, however, the production was not profitable and he was forced to shift his production from milk to meat. To abandon animal farming at all was not an option for him, because the animal manure is an invaluable resource on the farm and as dung forms a vital component of the nutrient cycle.



Whilst Peter managed to stay in business by shifting production, many farms meet a far more devastating fate. At today's rate, every day two farms in Switzerland quit production completely. The phenomena of farm dieback is extremely prominent in the milk sector since smaller farms struggle with the low milk price and cannot produce cost-covering.

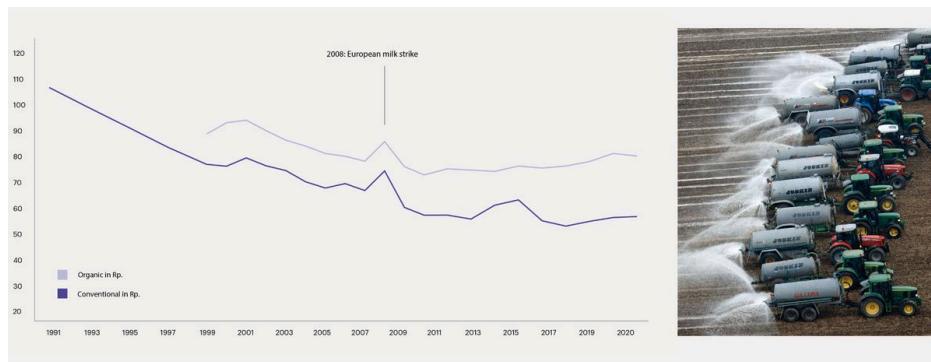


The number of farms in Switzerland is drastically decreasing.

Why is the milk price so low? Two main drivers can be distinguished: Firstly, in Switzerland the degree of self-sufficiency for milk and milk products lies at 114 %—the only food group that is above 100 %. What is not consumed inland is exported. The amount of exported goods with 25 % exceeds the production surplus, which means that a great deal of dairy goods also is imported. As a result, the Swiss market is tightly entangled with world market prices, especially after liberalisation of the cheese trade (which makes up almost half of the Swiss milk resources) with the European market in 2007. The low milk prices within the European Union further depress Swiss milk prices. The increasing value of the Swiss franc further worsens the situation: shopping tourism increases pricing pressure on retailers, who pass it on to the producers.

Second, since the abolition of the milk quota (2006 CH, 2015 EU), farmers can set their production volume individually. If they receive less money for their milk, they start to increase production. Subsequently, more milk is on the market, what in turn puts additional pressure on the prices. To avoid losses, farmers produce even more and a vicious cycle begins. To illustrate: In February 2014, farmers within the EU received 41 cent/kg for their milk. After the abolition of the quota in March 2016 just 27 cent/kg.

In 2008, farmers throughout Europe went on strike to gain attention to their miserable situation. The milk boycott lead to a short increase in value, but the effect did not last and prices are continuously sinking ever since.



Upscaling and Automation



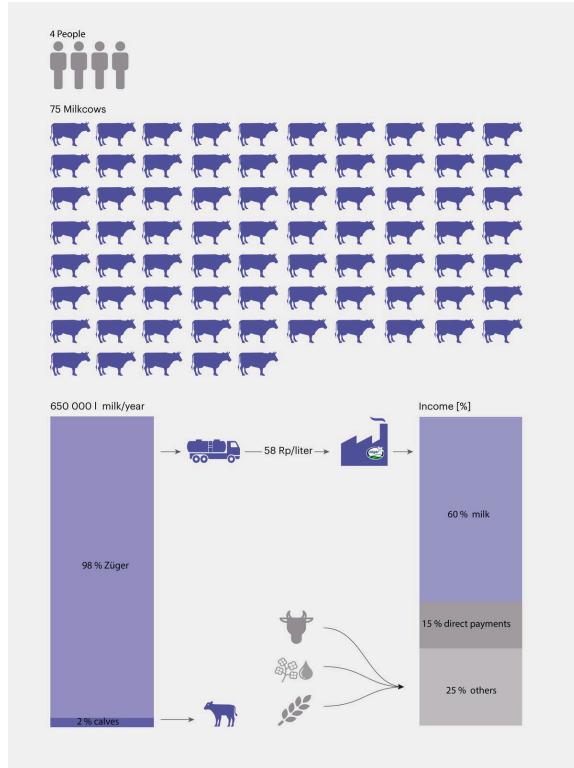
"There is a bug in the whole system."—René Baumann

René Baumann is a farmer who is still active in the milk business and pursues the strategy of growth to fight the problematic of low milk prices. At the age of 20, René took over the farm of his family in Stallikon. At the time, the production volume entailed an average of 56,000 litres a year. The conversion of the cowshed increased production first to 150,000 litres, and in a next step to 250,000 litres. At this point the growth potential was exhausted and the production volume stagnated. The family of his wife did not find a successor for their farm in Ebertswil so he could take over and merge both locations into one giant operation, resulting in today's production volume of 650,000 litres on a total area of 75 ha of farm land.



Stallikon: 43 ha.

Ebertswil: 32 ha.



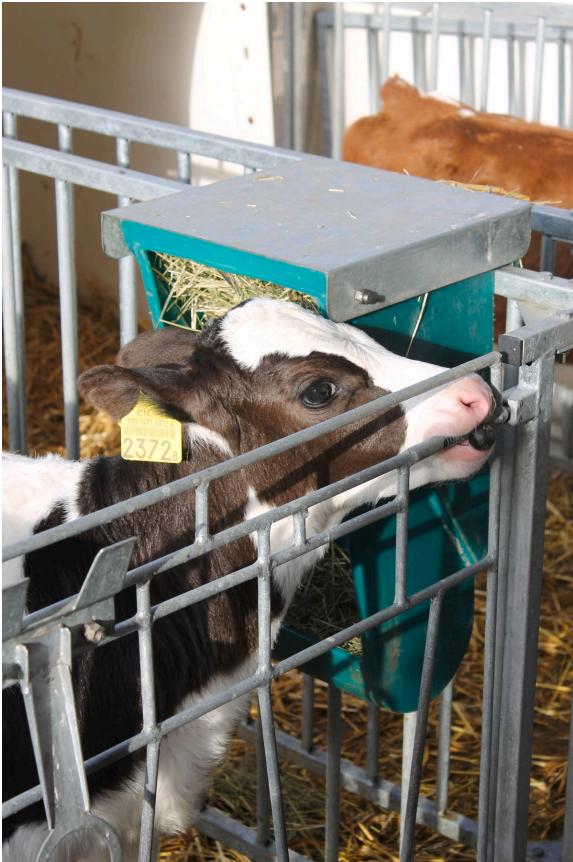
Production scheme of the farm.

The milk is produced by 75 milk cows. Among them is Blanca, his best “performer,” averaging an outstanding 40 litres per day. The milk is collected every second day and delivered to Züger, a large dairy processor in the eastern part of Switzerland. Whilst the farm in Ebertswil is dedicated to milk production, the farm in Stallikon is used for the upbringing of the young cattle. The fortunate location of the farm on the plateau allows for large scale fodder cultivation, in compliance with the principles of an integrated production.

In the course of merging the two farms, René heavily invested in automation. The milking robot as well as the automated fodder dispense system enormously decrease the workload, which allows him to operate both farms only together with his daughter and two apprentices. The time saved from milking and feeding the cows can now be invested in controlling, allowing for faster detection of injuries or illnesses of the animals, thus resulting in improved animal welfare, according to René.

Although René wishes to make ends meet without direct payments, even a farm of this size highly depends on subsidies, which account for 15 % of the total income. If the milk price was to rise by just 0.05 CHF his turnover would increase by 30,000–35,000 CHF. “And the consumer wouldn’t even notice,” he adds shaking his head, “but Migros and Emmi are continuously squashing the prices.”





Holstein (8824 kg/year)



Red Holstein (8241 kg/year)



Montbéliarde (7513 kg/year)



Swiss Fleckvieh (7146 kg/year)



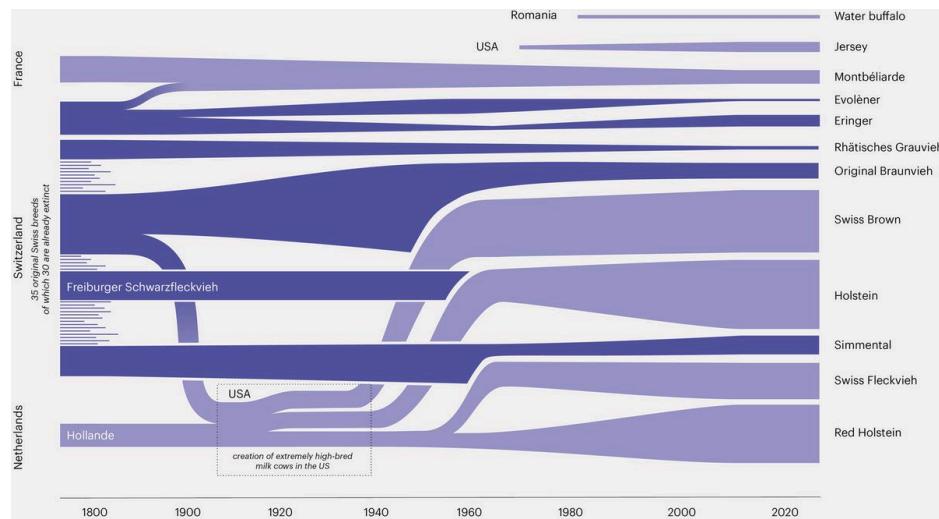
Brown Swiss (7328 kg/year)

Simmental (5960 kg/year)

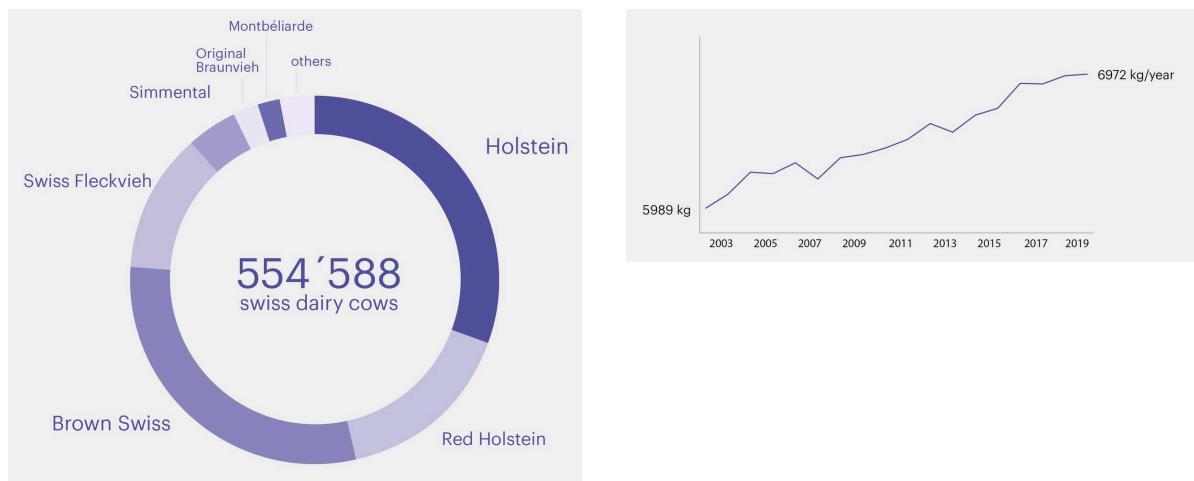
The nationwide annual milk production is steady at 3.4 million tons of milk. As the Swiss milk producers disappear from the scene in a drastic pace, the average farm size has to increase according to the principle "up or out," which means more productive animals: in 2000 there were still about 700,000 animals, today there are 554,588 productive cows.

Dairy cattle are the most efficient of all farm livestock in converting green fodder and energy into human edible protein. The ability of these and other ruminants to consume wild grasses, legumes, and other plants and turn it into up to 60 kg of high quality milk in one single day is extraordinary. But a cow has to give birth to a calf for being productive throughout the year. The productive phase starting after the calving and enduring up to about 305 days is called the lactation. Succeeded by a 60-day dry period before ideally calving again. The daily milk production is not evenly, starting with the highest amounts in the beginning of the lactation, the daily milk production decreases steadily until the beginning of the dry period. One can see that the milk output of the animal is sensitive to its birth rate and also enormously energy-sapping.

As the demand of milk increased, scientists wondered if one could stimulate the circulation of the animals to produce more milk. 30 original Swiss cattle breeds are extinct because of their lack on being an efficient milk deliverer. Starting around 1960 the intentional breeding of dairy cows to enhance their performance and attributes gained more and more attention. Especially their productivity regarding milk is being pushed by breeding specialists and companies in the US.



High performance breeds like Holstein or Red Holstein were cross-bred in Switzerland and diminished the diversity even further. The average milk production of a Swiss cow is strongly increasing due to breeding. Today an average dairy cattle produces 6,972 kg of milk per year. But the ability to push the productivity of cows has its limits. How far should we push the envelope?



Self-Processing



"The consumer is willing to pay for regional products. We see that at our farm shop."—Gottfried Gachnang

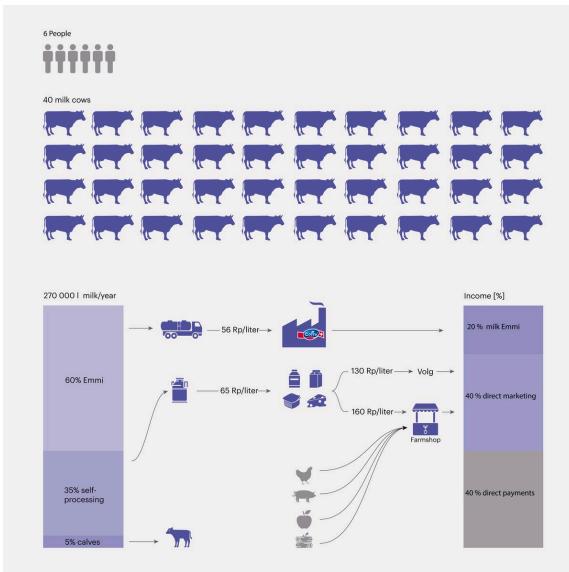
On the plateau above Horgen lies the farm of Gottfried Gachnang. Together with his wife, son and daughter-in-law he looks after 40 milk cows and 30 cattle on a total of 29 ha of farm land. The proximity to urban settlements makes direct marketing an attractive outlet. In addition, residents of Horgen and Wädenswil who come to the region for recreational purposes are potential customers.



Oberrieden: 7 ha.



Horgen: 22 ha.



Production scheme of the farm

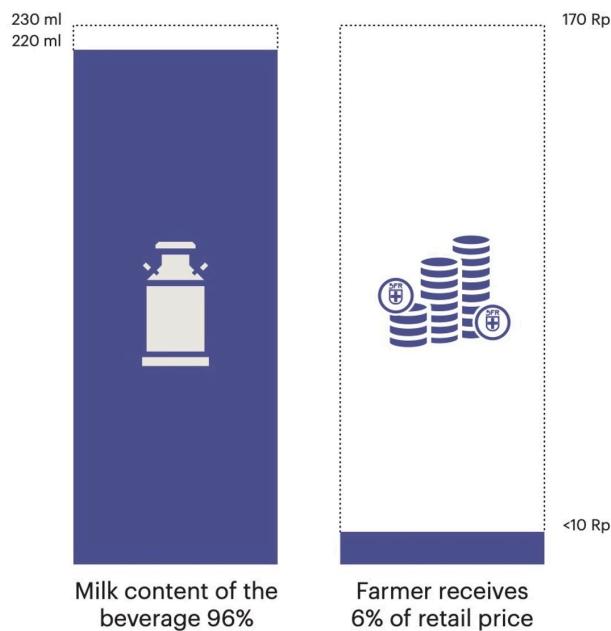
In 1995, he started to process over a third of the produced milk by himself and sells products like yoghurt, formagginis, curd cheese and pasteurised milk directly on the farm. That way, he can profit more from the extended value chain of dairy products than if he were to sell the raw milk to a large processor. Besides self-processing, he sells 60 % of his milk to Emmi.

By selling raw milk to Emmi, the largest milk processor in Switzerland, he gets 56 Rappen per litre, but if he processes the milk by himself, taking into account wage and expenses of the processing, he attains 65 Rappen per litre. A seemingly small difference that adds up massively considering the total annual production volume of 270,000 litres.

A bottle Gachnang milk can then be bought for 1.30 CHF off the shelf from selected local retailers or directly on his farm for 1.60 CHF.

Apart from additional homemade products like apple cider, collaborations with other farmers in the surrounding area allow him to enrich the product range of his farm shop and become even more attractive for customers.





Value distribution in the value chain of dairy products:
 Migros sells the product „Grande Caffè“ as competing product to Emmi's „Caffè Latte“. The product is exclusively sold within the Swiss market. It is produced by Elsa, has a total content of 230 ml and costs 1.70 CHF a piece. It contains 96 % skim milk, for which the producer receives 45 Rappen per kg. This means the value of the milk accounts to less than 10 Rappen which is less than 6 % of the product price. Producers like Gottfried escape this untenable state by processing their milk themselves.

Creating a Mainstay in the Service Sector



“We often say, we need a war. After the war there was a high regard towards agriculture. People would know our farmers provide for us and that we depend on them.”—Thomas Rusterholz

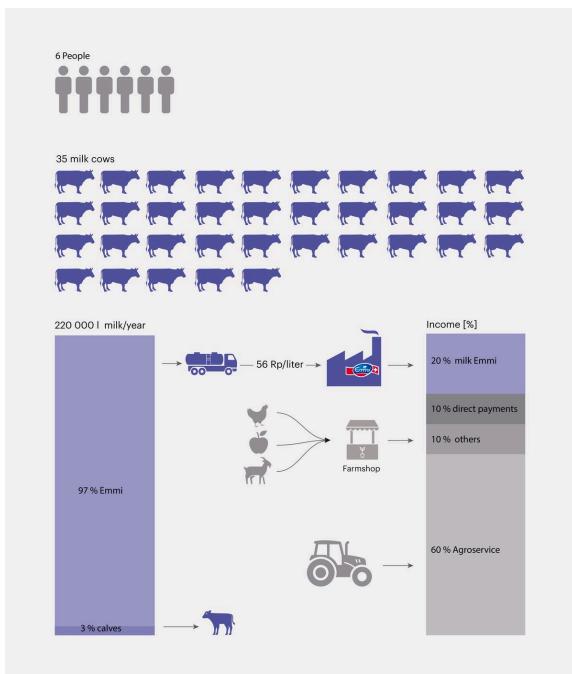
The Blumenhof Rusterholz is located between the village and the nature protected area. Thomas Rusterholz was able to take over the farm from his parents and is now manager. His parents still work on the farm and his mother Marianne has been running a garden-nursery on the farm for 30 years. The farm still produces milk and sells it to Emmi, but it makes up only 20 % of his total income. Thomas does not see a future in milk farming and decided not to invest in upgrading his barn, but instead looked for another way to live off of farming.



Schönenberg 36



Seebach 4



Production scheme of the farm

Thomas Rusterholz feels that he is being taken for a fool by the milk policy. He believes the milk price is too low but the wholesalers still make money from it. He considers a switch to meat production as a possible next step, because he does not want to wait until the milk price might rise again one day. For a long time, he believed that the dairy industry would recover, but today he no longer has high hopes.

About 30 years ago, when a neighbouring farm gave up, he had the opportunity to buy the land and expand. Today, the farm cultivates an area of 36 hectares and in addition a small area of 4 hectares in Zurich Seebach. 18 % of the area is ecological compensation area. The area of the nature protection zone was determined by the Canton. This area was drained by Thomas' father by hand to gain more arable land. Today, however, due to direct payments, the field is worth more as a compensation area than if it was cultivated.

Thomas sees direct payments as part of the problem in agriculture. This is because these payments make farmers able to be controlled by the state and used, so to speak, as a cheap labour force in landscape management. Farmers are paid for things they then do without understanding why. Farmers are there to produce food, not to produce the beautiful image of a farm. Agriculture is becoming more and more industrial, just like any other economic sector and there is nothing wrong with that, he says.

Originally, Thomas wanted to work 100 % in food production. Little by little he bought himself machines. Renting these machines including executing works with the machines became an additional source of income. This business, called Agroservice AG, now makes up 60 % of his income and therefore is a bigger line of business than his actual farming activity.





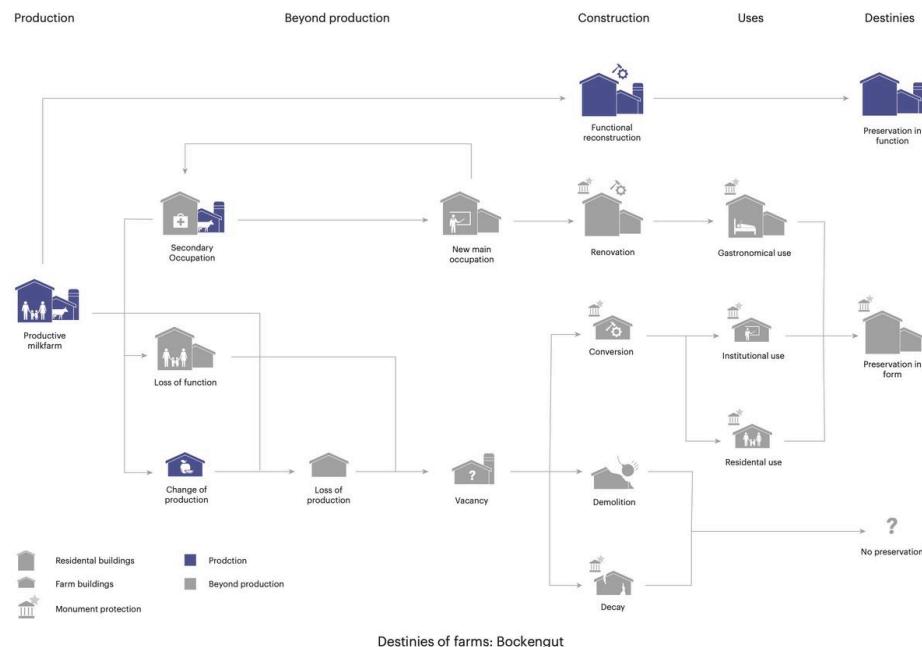
Aftermath of Economic Change



The region of Zimmerberg has a long tradition of agricultural practice. Today there are hundreds of old agricultural buildings, mostly under monument protection. Whilst some of them are still in agricultural use, others are the remains of farm dieback and are today converted for a different use.



The urbanisation in the region of the lakeside exerted high pressure on farms and their productive land since around 1900. In general small-scale farms have difficulties to uphold their productivity and therefore the maintenance of these old structures. Various examples prove that such farm buildings can get a second chance through conversion. In contrast, the obligations of the monument protection constraint the farmers in their possibility to modernise, alter or even demolish their own buildings.



A second chance for the farm beyond production.

Sennhütten: Remnants of Economic Change

Due to the long history of pasture farming in the region of Zimmerberg a large number of empty or reused buildings are former cheese dairies. Their loss of function can be traced back to the structural development of large-scale dairy processing networks over the past centuries.



Centralisation of dairy processing and the departing of production and processing withdraws the farmer's power on the market.

At the time around 1800, methods for making milk longer lasting, such as pasteurising have not been invented yet. It was common that the farmer processed the milk to butter and cheese by himself directly on the farm. Not all of the farmers were fortunate enough to invest in a separate building for processing their milk but having a proper infrastructure was crucial for the production of high-quality cheese. Therefore, friendship-based communities were formed: The farmers processed their milk into cheese in the neighbour's *Sennhütte* and from there the cheese was sold to a dealer. The price for the cheese was calculated by the price the dealer obtained by selling it as a speciality abroad. The farmer's share amounted to a twelfth of the profit.

To fight this injustice, the farmers began to form farm and distribution cooperatives around 1900. This led to an increase in profit for the farmers: they received now 75 % share for their milk. Along with the formation of these dairy processing cooperatives came the separation of the farmer and the cheesemaker into two separate professions, as the cooperatives would usually hire wage-earners to process their milk.

The subsequent years production increased dramatically. Cooperatives merged into giant dairy processing enterprises and the farmers slid down the food chain as they drifted more and more into the role as bare suppliers. They massively lost power in the market and now only receive less than a third of the sales price for their milk. On today's competitive market small dairy processors do not stand a chance against the market leaders such as Emmi, Cremo and Elsa. There is now only one active dairy left in the whole region, namely the Molkerei Höhn in Hirzel.



Vacant former cheese dairy.



Residential house, former cheese dairy.



Residential house, former cheese dairy.



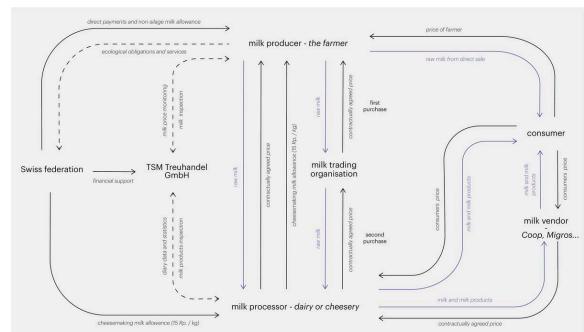
Pottery shop, former cheese dairy.

Anonymous Milk Networks

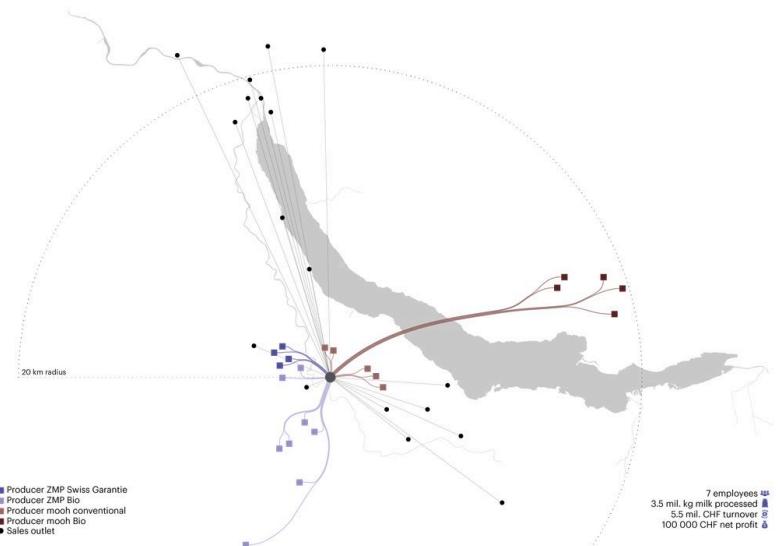
The Molkerei Höhn in Hirzel does not buy its milk directly from the farmers but from large milk trading organisations. This gives them flexibility and means less risk, but makes them subjected to the pricing of the overarching market and increases the gaps between producer, processor and consumer. This anonymisation of the milk production hampers attempts to increase the valuation of a regional product.



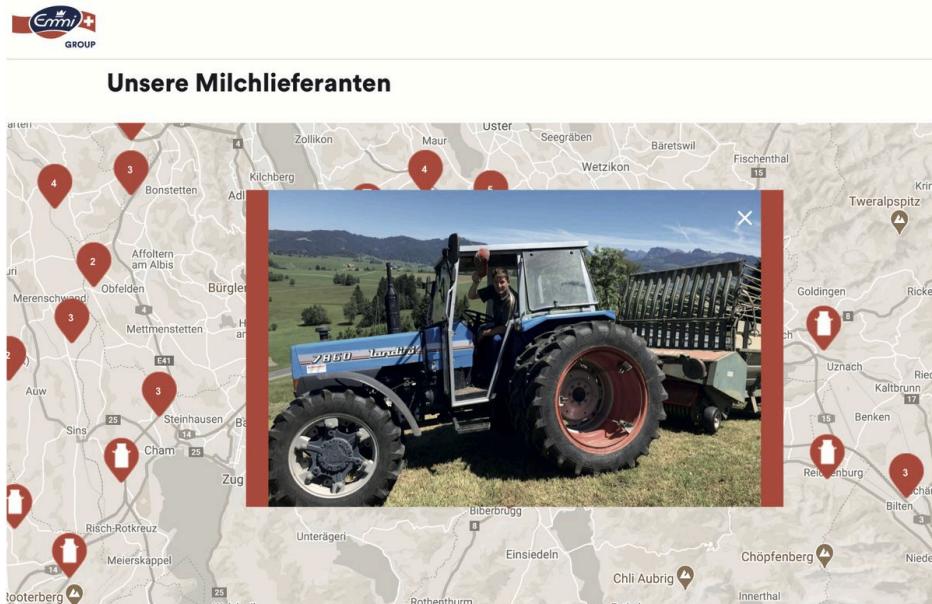
The regional dairy Höhn Hirzel buys their milk from intermediaries.



The complex structure of the milk market estranges the players within the network.

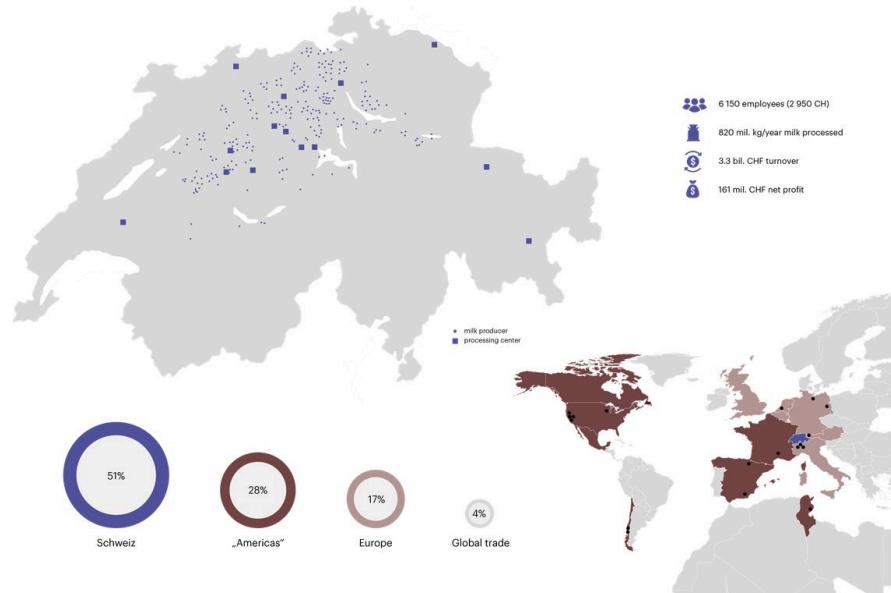


The network of the regional dairy Höhn in Hirzel.



Emmi tries to put a face behind the milk.

Emmi, the largest milk processor of Switzerland, tries to actively fight the image as the evil corporation and to increase transparency in their overall business. Within a few clicks one can gather precise information about turnover, profit, suppliers and even international activities. On their website they published a map with the location of their farmers, alongside a photo and a brief profile of their farm. But does this help to fight the problem of anonymous milk or do we need to come back to truly regional networks in order to increase valuation of milk?



The Emmi tries to fight the image as evil corporation with transparency.

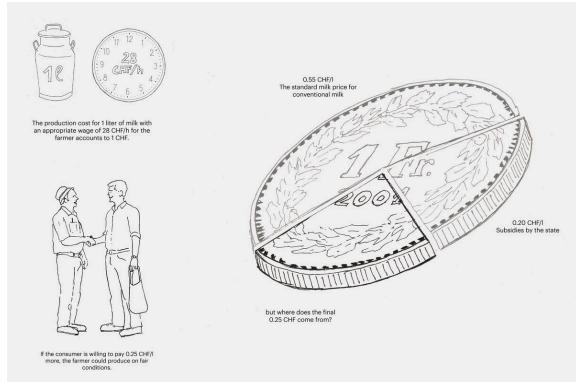
Promises of Fair Milk



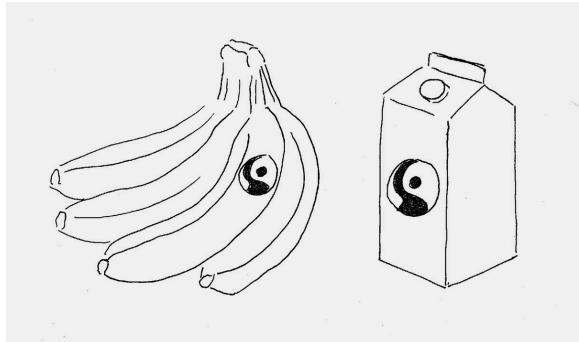
The current trend in the dairy industry is go up or go out. Small farm enterprises therefore disappear increasingly. But even large and expanding farms struggle for economic survival.

In the long run, growth of farms alters today's fragmented landscape image drastically. In order to preserve the current image we have to thwart the farm dieback and give small scale farms, who are important caretakers of the landscape, a chance of survival. A healthy mixture between capacious and minuscule farms could cover the consumers demand and at the same time protect the characteristic appearance of the territory.

What Is Needed



1 CHF per litre milk allows the farmer to produce covering costs.



Every second banana sold in Switzerland is fair trade, but what about milk?

This tendency could be counteracted in the form of a fair milk. A milk where it is ensured that the producer takes enough share in the value chain to be able to cover the costs of production. Swiss market research shows, that consumers increasingly attach importance to products coming from Switzerland or, if possible, from the region. This is especially true for milk. This is due, among other things, to the image of the Swiss family farm, the shorter transport routes, the reliable quality controls and the strict animal welfare regulations in Switzerland.

The increasing environmental awareness and the interest in where the products come from and who profits how much from it shows, that a label that stands for a milk product being fair and regional could work. Every second banana sold in Switzerland is fair trade, why is this not the case for milk? Market research also shows that many consumers are willing to pay more for milk if the money benefits the farmer directly and untouched. To ensure this, an independent network that the consumer can trust in would have to be established.

Getting Everyone on Board

How would such a network look like? The most important characteristics of the fair milk organisation is to be dynamic and to involve members of the whole chain, meaning producers, processors and distributors.

The solution we propose is a cooperative consisting of a manageable number of farmers, a small dairy that allows to separately process low volumes and a retailer network that has already a reputation for regional products, and a loyal customer base. We know from our conversations with the farmers of Zimmerberg that they would be absolutely on board. As for the processor, the Molkerei Höhn in Hirzel matches all requirements and the retailer Volg suits our needs perfectly.

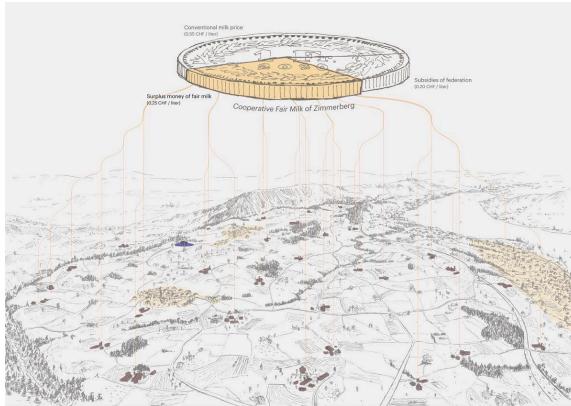
At the beginning, only as many members would produce the fair milk as there is demand for it. The others still supply conventional channels. Through this flexible system, one could adapt well to the consumer demand. As the demand gradually increases more and more farmers would have the possibility to supply the fair milk channel and the dependence on conventional channels decreases.



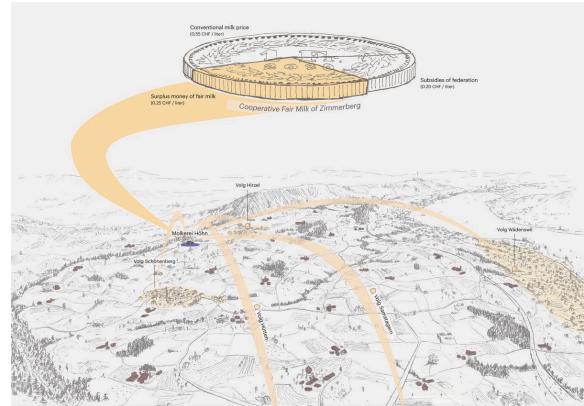
With an increasing demand of fair milk the network can spread throughout Zimmerberg.

The money surplus that is made by selling the fair milk flows upstream in the supply chain back to the cooperative where it is then divided evenly among the farmers, regardless if they supply the conventional or the fair milk channel. As the demand for fair milk increases the members slowly approach the needed 1 CHF per litre milk.

The current spread of the Volg sales points only allows for limited growth of the fair milk network, as they are mainly located within the rural areas of Zimmerberg. The most promising outlet however, would be the urban area with five times the population density. Therefore either additional Volgs would have to be opened within the urban area or other retailers like Migros or Coop would have to add the fair milk to their product range.



The surplus money is divided evenly among all members regardless what channel they supply.

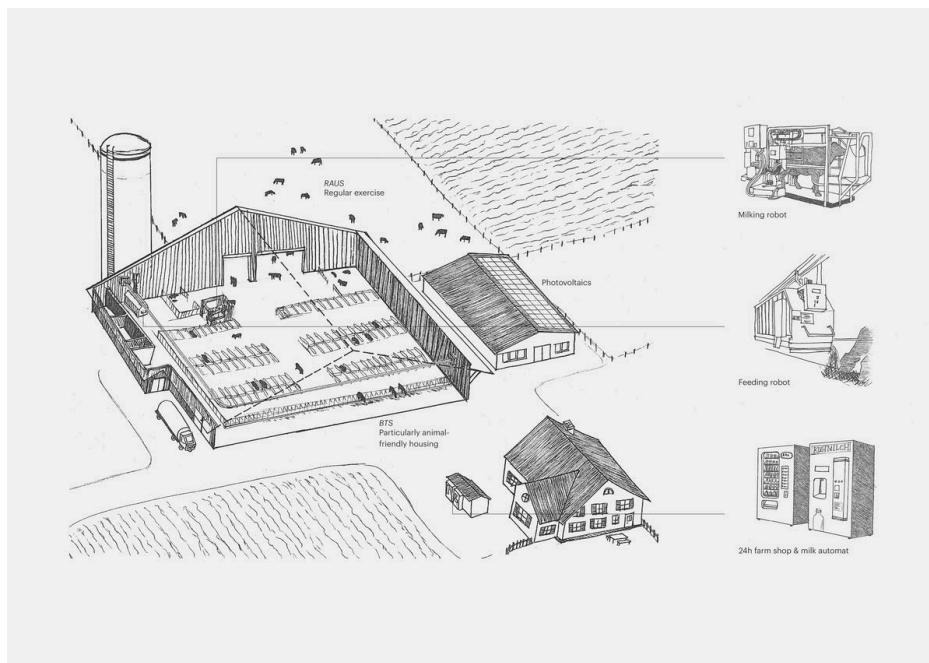


The difference in price the customer pays for the fair milk arrives fully at the cooperative.

Animal Welfare and Possibilities for Investment

In order to establish a good reputation of the product and not only guarantee regionality but also production with high animal welfare, farmers who want to join the cooperative must fulfill the conditions of RAUS (outdoor roaming on regular basis) or BTS (particularly animal-friendly stable).

In the long run, the milk producers relieved from the constant financial struggle would be able to make investments that allow for better working conditions, for instance a feeding or milking robot or a milk vending machine. Such modern technologies take a lot of work off the farmers' hands. On the one hand, this allows them to take a weekend off, but at the same time it offers them to devote more time to the controlling and care of the animals.



The Consumer's Choice

The cooperative can be more than just a business arrangement. It can serve the farmers as a platform where they can exchange experiences, help each other out and share knowledge. Furthermore the cooperative must be present in the local community. Inhabitants of the region of Zimmerberg must know who they are and what they want to achieve. The farmers need to take responsibility and proudly stand behind their product. Investments in educating the people about the current state of the dairy industry must be made and the product could even be promoted in front of the sales points by the farmers themselves. As the whole system relies on the consumer's willingness to actively choose the product in the shelf over others, marketing becomes tremendously important. If the consumer sees faces behind the product and knows about their struggles, they are more likely to buy the fair milk.



Would you?

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