

White Gold

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Multispecies Design Explorations of Milk
in Swiss Dairy Farming Context

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Abstract

English

White Gold follows the vibrant life cycles of milk creation at biological, organic, emotional and social levels. The project investigates ecological interactions involved in the complex production of milk through ethnographic and design research. The insights are gathered in an interactive multi-sensory installation and a website presenting multispecies narratives that emphasize the vital efforts around milk processes. The final aim is to (re-)create respect and value for milk by increasing awareness, transparency and empathy towards living entities interconnected in bovine milk production. This allows us to consider more-than-human life forms in a history of anthropocentric consumption.

Deutsch

White Gold folgt den pulsierenden Lebenszyklen der Milchschröpfung auf biologischer, organischer, emotionaler und sozialer Ebene. Durch ethnographische und Design-basierte Forschung untersucht das Projekt die ökologischen Interaktionen, die an der komplexen Entstehung und Produktion von Milch beteiligt sind. Die Erkenntnisse fließen in eine Rauminstallation und eine Website ein, die artenübergreifende Geschichten präsentiert und die lebenswichtigen Bemühungen rund um den Milchprozess hervorhebt. Ziel ist es, Respekt und Wertschätzung für die Milch zu schaffen, indem das Bewusstsein, die Transparenz und das Einfühlungsvermögen für die Lebewesen, die in der Milchproduktion miteinander verbunden sind, gestärkt werden. Dies ermöglicht es, neben dem Menschen, auch andere Lebewesen in einer Geschichte des anthropozentrischen Konsums zu berücksichtigen.

Introduction

Context

Farms are special places. They are the places where our food grows. The land is cultivated and the animals are raised for our needs. The farm is not just a work tool; it is a place of life, love and passion as envisioned by Anne Galloway, anthropologist, designer and shepherdess. This place gathers a multitude of sensations related to everything that can define a farm. What happens when we look beyond the human? And more specifically, what are the connections and perceptions of the more-than-human and human entities throughout the dairy production process?

In Switzerland and worldwide, agriculture tends to follow an ecological and technological turn. The challenge of producing more for the growing population while respecting the planet has to lead to new ideas. But in some cases these efforts might distance us from the original source, from the living materiality. In our tiny Switzerland for example, the rural image is still very folkloric and idyllic, with traditions that are well anchored, especially in rural areas. This romantic image, used in visual or cultural representations, alienates processes, cycles and rituals. This thesis brings a change of perspective and a new way of looking at milk through the lens of interaction design, the *Slow Food* concept¹ and the more-than-human.

Anthropocentrism does not help to become aware of the living world. This project aims to design a multispecies narrative experience to become aware of all the human and more-than-human actors in the process of creating Swiss milk in order to reconnect with the living, increase transparency, empathy and value.

Questions echo in my head, a mixture of reality and subconscious: «*What are you going to do as a designer for the world, what is your purpose, what are your principles? Will your contribution help or create new problems?*»

According to Anne Galloway, fixing the world is a utopia. Change begins with ourselves. She emphasizes that «*we must start where we are.*»² I am personally and ethically interested in the old milk tradition in Fribourg, Switzerland. As Galloway

¹ Bennett 2010, «How Food Matters»

² Galloway 2020, 0:25:39

says, consciously designing locally and sharing your work inspires others around the world to do the same in the region they come from. The inspiration I take from other concepts generates a new project that in turn will inspire other designers for another concept. This is what creates, I imagine, the community of designers of all horizons in a living materiality: a creative one that pushes ideas fed by inspirations to «*change the world*» towards what we hope will be a «*better place*.»

Research Questions

How to design a multispecies slow food storytelling experience to be aware of all actants in the development process of Swiss dairy to reconnect with the living, increase transparency and empathy?

What is the dairy history in Fribourg? Why do humans drink animal milk today? What propaganda mystification is used for the dairy and its actants?

What are the connections and perceptions of non-human and human entities along the process of milk production?

How to let experience the whole «*Milk Journey*» in a multispecies macro-micro storytelling to an audience? What kind of interactive experience will generate empathy?

Aims & Objectives

The aims are defined by the will to sensitize to the world of the living, as well as the local production, to see the milk and milk creation in a new era as an entity. The main aim is to (re-)create respect and therefore value for milk due to its complex creation processes and life involved. Taking the example of the concept of *Slow Food* where food, traditions and the process of its creation take a more important place in society.³

My objectives are to:

In the context exploration:

→ Apply interaction design and ethnographic field methods to observe and understand the farm experience on a dairy farm in the Fribourg region

³ 'Notre histoire - En savoir plus' n.d.

→ Explore other points of view of the more-than-human on the dairy farm
 → Imagine different possibilities of immersion in the dairy farm context
 → Understand the image and communication of milk agriculture in the past and present

For the outcome:

→ Improve the transparency of methods of milk production in Switzerland
 → Develop interactive narration that can raise awareness about the origin, effort and vital multi-species demand for the milk creation process
 → Provoke the current situation of the human-centered dairy process with a more-than-human approach
 → Restore the importance of vitality and value of food (milk) through interactive strategies
 → Design an interaction between the consumer, farmer and the milk process in the storytelling of the living materiality

Methodology

The overall research methodology summarized in the attached diagram is based on critical and emotional design, creative methodologies guided by exploratory methods pursuing experimentation towards iterative prototyping of various engagements with the theme of milk and dairy farming. Below, the methods are revealed in more detail.

My first approach is characterized by an ethnographic and experimental study of the place where milk is created – the farm. The idea is to discover the local context of the dairy farm by exploring while doing. This incursion into the agricultural world allows me to become familiar with the core of the subject. In this way, I choose to play the role of an ethnographer by respectfully engaging with the farm and its living entities. This first phase allows me to focus on the milk in the dairy farm. By employing an explorative research approach with a direct and participatory observation^{4/5}, I draw in new inspiration, research and design processes for my project. This immersion does not make me a farmer, a cow or a *symbiont*⁶, but it gives me a sense of the local dynamics. In addition to my observations, I also interview farmers about their experiences. The ethnographic

part of this work sends me on a year-long immersion in the context of the dairy farm with the multispecies entities acting there. I photograph, listen, film, feel, observe, participate as well as take notes and interviews. This allows me to link the information together in the final idea of a global narrative around the process of creating milk.

Background research enables me to follow up on the theory of practice. The analysis of inspiring design projects qualifies an insight into possible outcomes.

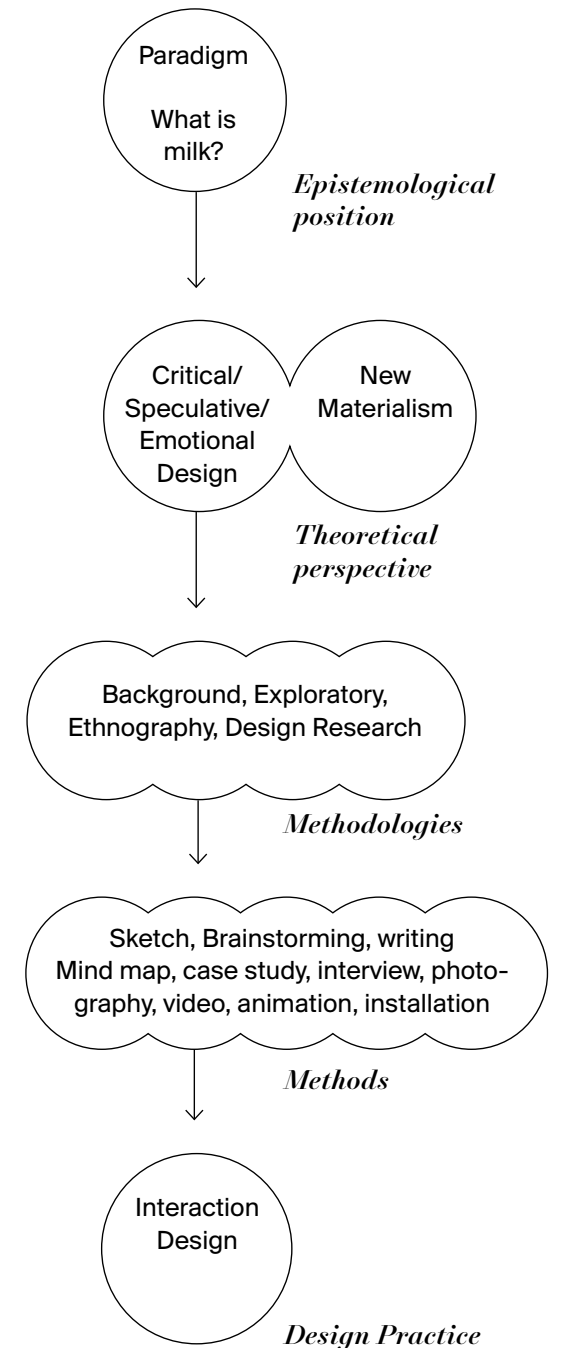
Tactically, this thesis uses the creative strategy of critical design. According to Ian Gonsler, this design method is used as a medium to make visible what is not visible in our usual interactions while also taking into account the processes of creation of the themed object.⁷ Anthony Dunne, critical designer and founder of the movement along with his partner Fiona Raby were inspired by the Italian Radical Design. They present this trend as an opening for discussion rather than a critical attack.⁸ This way of doing things positions this thesis as questioning the current process. In the case of animal milk and milk production, the transparency of the creation process by taking into account the more-than-human tends towards a provocation and a questioning of the current human position in the global ecological system.

The chosen overall research methodology is based on a study of the living, but also of the feeling, in a direct link with interaction design which underlines the issues; *«How do you do?»*; *«How do you feel?»*; *«How do you know?»*⁹ Doing my best to take into account the multitude of species involved in the theme of milk and inspired by Dr. Anne Galloway, I assume that the experiences of this project balance between thought and emotion.¹⁰ As Jane Bennett, an American philosopher, states, a touch of anthropomorphism brings a dimension of empathy, but above all of living. In this thesis, the *«thinking»* part encompasses theoretical research and case studies while the *«feeling»* part is metabolized in the experiences around the theme.

*«A touch of anthropomorphism [...] can catalyze a sensibility that finds a world filled not with ontologically distinct categories of beings (subjects and objects) but with variously composed materialities that form confederations.»*¹¹

The research through *«interaction»* design¹² followed in this thesis allows for a mapping of iterations around the context and research questions. Using design methods such as brainstorming, sketching, mood boards, models, prototyping, visuals, storytelling and experiments, this study aspires to a concept that is strengthened by an open action of constant evolution and reconsideration. The design process, according to Stolterman, is not 100% controllable nor scientific. The result is not always what we thought it would be. It is designed as it develops and adapts, influenced by the designer constantly framing and reframing.¹³

From overall to detail, and vice versa as in the *Double Diamond* method¹⁴, the solution at the end of this Master thesis opens a new vision of milk and an interactive storytelling strategy.



Motivation and Personal Contribution

Like many other sectors nowadays, Swiss agriculture is in a serious crisis. Between ecology, animal welfare and production for the growing population, a tension can be noticed. As a young designer in a relationship with an agricultural engineer and a farmer for 10 years, I feel the need to study this sector. In addition, in a few years' time, we will probably take over a dairy farm in the Canton of Fribourg.

Food production is the essence of our survival. The link between the farmer in the countryside, the method of production, the living materiality and the consumer should be strengthened.

On summer evenings, I see my companion coming home very late after a day of haymaking that started at dawn with milking. I often wonder what motivates him so much. The farming profession is keeping up with technology. Working conditions are improving, but it is still a difficult and physical job. I would like to find out what makes him so passionate and what may be the «*new possible*» in the future on a dairy farm.

«*Disclaimer*»

In a society that is constantly questioning itself, I am aware of the extremist ideas against the exploitation of animals. The practice of farming with livestock is, however, anchored in Swiss food culture and folklore. It remains legal. Within this framework, I would like to create nevertheless more empathy and understanding towards non-human entities.

Contribution to the Field of Interaction Design

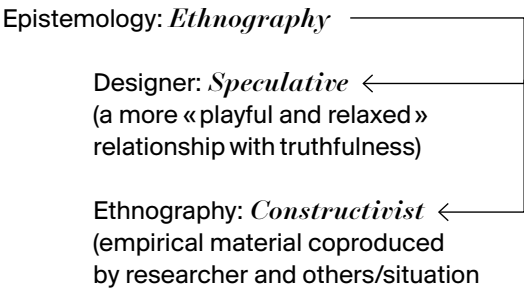
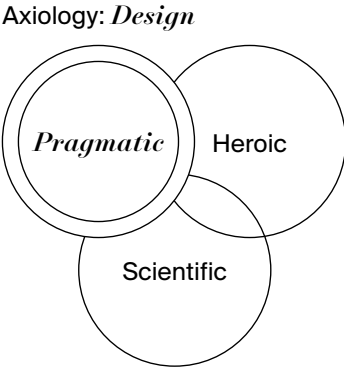
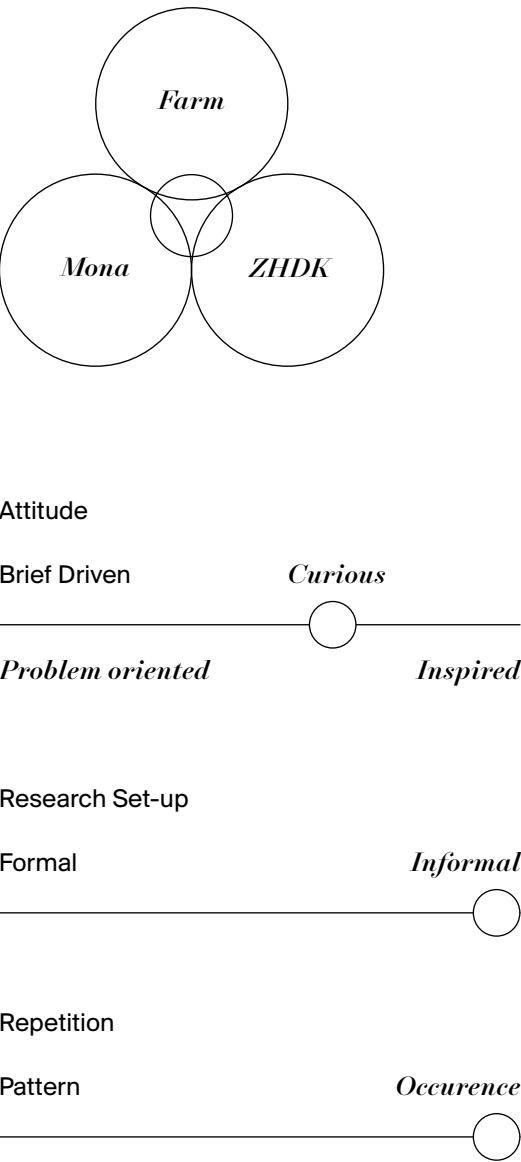
This project contributes to the field of interaction design by taking into account the interactions of the more-than-human in the Anthropocene. Interfacing milk ecologies, this thesis develops a vision on the human – more-than-human relationship in a consumer system by shifting perspectives. The human being lives on earth. He interacts with living matter constantly. Beyond human-centered technology, the overuse of living resources takes away from the primary relationship to them and forces to forget the origin or to take it for granted. In an increasingly digitalized society, the distancing of the origin of food is worsening. The interfacing of living storytelling leads to an empathetic consideration of the vital force necessary for human need. More accurate attention of the more-than-human brings a required ecological dimension to interaction design in a world in environmental questioning. Enhancement of multispecies entities and their macro-micro interactions in human eaten food creation process emphasizes interconnectedness and dependency of an ecological balance rather than individualism.

Chapters Summary

Opening with the analysis of design processes, the thesis continues with a philosophical part that argues the material vitality. The look at the milk history, traditions and the state influence on the Helvetian leads the reader to the questioning of the agricultural role in Switzerland. The case study provides, in the following chapter, a basis of existing concepts with similar objectives. The physical exploration of the farm, described next, allows a more relaxed approach than in the previous chapters to immerse oneself in the living context. The last part highlights the process to define and apply a reflective concept in an installation and a digital medium.

Research Position

Diagram idea from Nova et al. 2014, 74



Background

Design and Ethnography

In this interaction design thesis on the dairy farm and milk, ethnographic methods play a huge role in the context analysis. Léchat Hirt quotes Fallan, a design historian, he describes design processes as « *a constant dynamic negotiation within complex networks of actors that largely exceed the community of designers themselves.* »¹ That's what designers do: analyze, synthesize and reorder information from complex systems to define new concepts. Some work with paradoxes and combine things together. Some are flexible and adapt to change. Some are empathetic and create mindsets. For each theme, designers frame, reframe the context and understand the different issues.²

The « *micropsychology* »³ of Abraham Moles quoted by Léchat Hirt, defines a vision of the designer's creativity attentive to the microdetails of everyday life. Moles refers to the « *web of life* »⁴ that resonates in society. In the case of milk creation, micro-storytelling analysis weaves the entities that lead to milk into the larger story of its ethical and conscious consumption.

The research of this study through design fits into the last two circles defined by Findeli in his « *Bremen scale*. »⁵ The development of the argument follows the process model and the actor model analyzing the logical functions and ethical, phenomenological experiences of the theme.⁶ The ethnographic approach is essential to understanding the content of the theme. Even if, I assume, it is used creatively not scientifically strictly speaking.

The design approach here follows Molotch, a sociologist quoted by Léchat Hirt, who speaks of creating objects as « *conversation pieces*. »⁷ By imagining the creation of an installation that should arouse empathy, it will also generate information about the process of making milk. From these points of view, we will find the debate or the questioning around the practice. In this framework, the ethnographic design pursued in the thesis is positioned in thinking, feeling and

creating, not directly towards problem solving. Information and empathy may lead to a chain reaction that will somehow increase the value of milk.

Speculative Design

In this respect, critical design plays an important role. The critical aspect follows a subtle path in this case (emotional/speculative). The aim is not to provoke severely, but to destabilize in a round-about ways. Critical design is used with the idea of reformulating the « *problem* » not solving it and this without developing an overly provocative artifact. An emotional, informative, speculative and critical mix supports this theoretical and practical study.

The speculative approach applied, is described by Nicolas Nova in the analysis of design processes. He emphasizes a relaxed approach to ethnography in the veracity of the facts and the interpretation of the data.⁸ Dunne and Raby's speculative design stems from radical and critical design. They place their practice within an idea of fundamental change in values and behavior impact.⁹ In their « *A/B* »¹⁰ chart, the designer couple develops the role of design, not as a solutionism but as a questioning, a discussion tool, a provocation.

Beyond the speculation-ethnography connection, the use of speculative design theory in the creative process extends the narrative of real-world facts to extremes, according to James Auger, interaction designer who quotes Slavoj Žižek.¹¹ For example here, we can imagine pushing empathy where the human puts himself in a certain way in the place of another entity. This would be extremely compared to the individualistic view of the world. The human perspective is taken into account, but also that of the more-than-human.

Interaction Design

Bill Verplank claims that interaction design only answers questions with the word « *How*. »¹² « *How do you do?* »; « *How do you feel?* »; « *How do you*

1 Nova et al. 2014, 17

2 Vannotti, 2022

3 Nova et al. 2014, 18

4 ibid.

5 Nova et al. 2014, 21

6 Nova et al. 2014, 20-23

7 Nova et al. 2014, 26

8 Nova et al. 2014, 71

9 Dunne and Raby 2013

10 Dunne and Raby 2013, « Preface,

vii »

11 Nova et al. 2014, 107

12 Moggridge 2007, 126-127

*know?*¹³ What is our impact on the world? What do we provide as affordances? Although this thesis is concerned with more-than-human processes in human developments, the target remains the human. The first question is therefore how to make the human feel, imagine the more-than-human in an originally human-centered context? How does it feel? How does it generate empathy? How does the visitor know if his action has activated the right reaction? How does it react? Will he understand the complex map of the milk process that encompasses many different actors? Will he understand the importance of food and its impact in society? How does the designer know it worked? These are the questions that I hope the final artifacts will answer, in an iteration of prototypes of an installation, a digital narration and this thesis around milk.

In the interaction design process described by Verplank, the designer has an idea or is working on a mistake. One looks for metaphors that connect that idea to its aim by imagining scenarios. One links the different parts to be developed and defines the methods in an overall concept. Then the designer sets up an interface to communicate this concept.¹⁴

This project questions and explores the existing interactions of milk creation, with the aim of defining a new interaction in a condensed design experience for humans. This includes analyzing aspects of New Materialism theory, more-than-human design, and living actants in milk production.

→ Wrap-up

→ Designers synthesize complex systems, working with attention to microdetails.

→ Design can be involved in the creation of artifacts as *«conversation pieces.»*¹⁵

→ Even if the design does not solve a problem directly, the conversation around the issue can lead to a repositioning and a change in behavior and values.

→ Speculative design theory can be used in the creative process to extend the narrative of real-world facts to extremes.

→ How do you design? How do you position yourself? How do you reach the aim?

New Materialism

As a human being, it is difficult to imagine the world in perpetual *«swarming.»* We are mostly focused on ourselves, our lives, our *«train-train,»* our flow. However, human actions generate an incalculable number of effects on other living beings, human or otherwise. It seems infinite. Everything is interconnected on macro and micro levels in different frames that interact.

Living Materialism

Milk is alive. It is what we could call an *actant* (a human or non-human actor who has an effect on other actants).¹⁶ In the philosophical and political approach of Jane Bennett, this white liquid takes on another dimension. Under the microscope, milk is an ecosystem that influences other ecosystems and stems from other ecosystems. It commands respect, as Bennett describes power materials in *Vibrant Matter*. It has the ability to alter, modify or enhance another entity.¹⁷ The politics of living materialism does not seek equality among all actors, but rather enhanced communication between them.¹⁸ It is based on a living energy mixed with an intense culture between the entities of the world. The milk is alive in itself and through all entities and processes by which its creation flows.

From the perspective of food, as Bennett describes, what would our world be like if eating became a new experience of the living world? This conscious view of the living on our plate connects with architect and writer Carolyn Steel's idea of *Sitopia*. The New Materialism connection can be seen in this statement from Steel: *«an energy that flows through our bodies and world, linking and animating everything as it goes.»*¹⁹

A definition of *Sitopia* can be summarized as seeing life and society through the lens of food. It says a lot about our culture and our practices. Steel argues that society today is rarely in awe of the food on offer, whether from industry or even local businesses. By awe, she means a high level of recognition and awareness of its value. The overabundance of food in the Western zone is one of the causes of this distancing, according to her. The industry does its utmost to veil the origin

of what we eat with nice advertising or multiple labels. *Sitopia* wants to put food back in the center of our attention, to give it back its importance and to cultivate/strengthen the rituals that are meant for it.

One could say that *Sitopia* stems from the movement described by Bennett known as *«Slow Food»*²⁰ which was founded in 1986 in Italy. The movement describes a farm-to-plate management in the spirit of local and seasonal pleasure in alignment with culture and ecology. A tradition of food brought back to the forefront and a slower way of life. The concept highlights the life stories around the ingredients and their production chain.²¹ This practice helps the consumer to be aware not only of the ingredient itself, but also the human, the animal as well as the plant effort of such an outcome. Bennett uses the *«What ... if...?»* and believes that we can go beyond human effort and focus more on material strength.²² This is one of the aims of this thesis about milk, to focus on the living materiality in the process.

→ Wrap-up

→ Everything is interconnected on macro and micro levels.

→ The Slow Food concept highlights the life stories around the food and the creation process.

→ Milk production is very demanding in terms of vital efforts. In those terms it is an *«expensive»* product.

Thinking-Feeling

Dr. Anne Galloway, Multispecies anthropologist and design ethnographer in New Zealand, defends a vision of design and the world governed by feelings and thoughts («*Thinking-feeling*»²³). She follows the thinking of Arturo Escobar in *Designs for the Pluriverse: «Thinking-feeling with the Earth ... [refer] ... to the profound conviction of our indissoluble connection with the Earth and with everything that exists in the universe, the unity of all beings.*»²⁴ For her, research must be composed of thought and emotional feeling. According to philosopher Charles Foster, who agrees with Galloway, humans today place more importance on thinking and intellect than on feeling. Returning to more primitive sensations can help us to understand better other humans, animals and other living entities perceptions.²⁵ As Foster argues, biologists do not like the term emotion when talking about animals. It is more accurate for behaviorists to describe animal behavior as one of a computer program based on biological facts and reactions. In another way, Charles Darwin quoted by Foster wrote that the reactions perceived by the dog in particular, manifest emotions that are neither instinctive nor voluntary, for example.²⁶

Galloway also raises animals, primarily sheep. She highlights that design goes hand in hand with ethnography. Animals, such as sheep, are for her a source of inspiration and life. Her way of raising animals follows a philosophy. She assumes that the animal benefits as much as the human from this relationship, like a kind of reset. A step further in this direction, Galloway speaks of love, to give and receive with the world and these living entities. Lucien Eggerstwyler from the Crausa Farm also highlights this concept, «*[The cows] give you back what you give them.*»²⁷ In a Maori concept cited by Galloway, collaboration is based on «*...ahora (love) ... [and] ... kaitiaki (caretakers).*»²⁸ In her sheep farming, Galloway follows the questioning she quotes from Leanne Betasamosake Simpson who raises moose. «*Does that moose see me as someone who is engaging with her in the relational terms set out in our diplomacy? Does she feel respected and that she has sovereignty and agency over the act of harvesting? Or have my actions made her feel like a resource? Does she see me as the enemy?*

23 Speed 2020
24 Speed 2020, 0:06:39
25 Foster and Piélat 2017, 31
26 Foster and Piélat 2017, 64
27 Eggertswyler 2022
28 Speed 2020, 0:13:57

Does she feel exploited? Unseen? Unrecognized? Hunted?»²⁹ Such an approach requires a high degree of empathy. In the same idea, Foster describes that humans have the ability to put themselves in the place of others. In the past, shamanic rituals were defined by the incarnation of an animal. Hunters used this practice a lot. For both animal and hunter, the dilemma ends in mourning. In this way, empathy plays a huge role in the attempt to understand another being.³⁰ Foster also cites that the ability of humans to live through another being is enormous. Empathy is the key, «*[...] the more we give, the more we receive.*»³¹ As Foster claims, humans and animals are in «*uninterrupted conversation with the earth from which [they] come and which constitutes [them].*»³². Except that the human's dialogue with the earth is much less limpid, according to him.

«*Design claims to make the world a better place.*»³³ as quoted by Galloway in a webinar. According to her, it is impossible to change the world without first changing the human and its interactions, its effect on the surrounding vibrating matter. The ethnographer turns to these sheep because they change her. She learns from them through her practice.³⁴ Looking at other species opens another way of seeing the world, another dimension, that of a New Materialism of the living, like Koechlin also argues in the next subchapter. Within this concept, Galloway uses ethnographic design to question a fact without being too harshly critical and remaining subtle, a tonality of communication that Dunne and Raby also note.^{35/36}

The human who studies another living entity is by definition practicing anthropomorphism. According to Foster, anthropocentrism and anthropomorphism are problematic to study animal behavior.³⁷ Animals are by nature different from us. We should not imagine that their feelings are the same as ours. Temple Grandin, a specialist in animal behavior and thought, agrees with this point.³⁸ By definition, a human who studies animals is not in their place. He can only imagine being. Is it really possible not to anthropomorphize? Foster himself

29 Speed 2020, 0:18:41
30 Foster and Piélat 2017, 34
31 Foster and Piélat 2017, 318
32 Foster and Piélat 2017, 43
33 Speed 2020, 0:12:18
34 Speed 2020
35 Galloway 2013
36 Z33be 2009
37 Piélat and Piélat 2017, 14
38 Grandin 2006, 23

describes at the end of his book that he has fallen into anthropomorphism after all.³⁹ Each living being on this earth has its perception of the world. One will never be able to totally see, feel and sense like another being even another human being. But humans can always try to get closer to the feeling of the other even if we talk about bacteria or earthworms as well as cows. The aim is to open this new dimension and at least try to imagine.

Galloway, Foster, Bennett open the field of sensation. They put this crucial empathy forward, studying and considering other entities in research, processes and results. From this point of view, an element (such as animal milk) from our human-centered society is shown in a new light. A light within which different dimensions, sizes, efforts are considered. This is what these experts wish to convey, this taking into account of the other (other than humans) as a full and living part that imposes respect. I keep this common theme in mind to guide me in my research of behavior and result.

→ Wrap-up

→ Empathy is the key for humans to imagine living through another being.

→ Looking at other species opens another dimension, that of a New Materialism of the living.

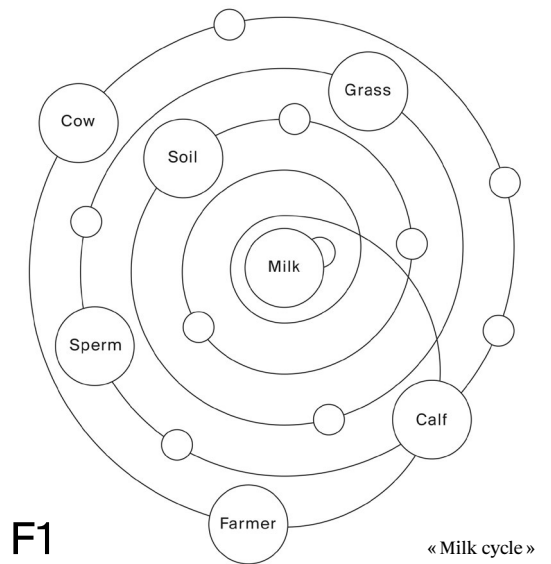
→ Animals are by nature different from us. We should not imagine that their feelings are the same as ours. Each living being has its own perception of the world.

More-than-Human

This subchapter assists the project in the overall view of milk production. This research aims to deemphasize the focus on the human by analyzing the other factors of the living world in milk production. Describing all the branches of what I imagine to be the «*family tree*» of milk (F1) follows the logic of the New Materialism applied to cow's milk. These elements are related from an anthropomorphic point of view. However, taking all these steps into account opens the path to the more-than-human in an analytical way. Quoted in the book *More-Than-Human*, anthropologist Anna L. Tsing, describes the «*assemblage*»⁴⁰ in the incursion of a global landscape of a combination where human and non-human build together.

This idea of analyzing different levels of dynamism leads to the Latourian actor-network theory. Latour describes it as being free from the «*tyranny of distance or proximity*» as well as from the duality of the micro/macro or the internal/external.⁴¹ This vision does not consider the macro/distance/external in one area of study and the micro/proximity/internal in another. It mixes distances and magnitudes for a more complex connection between the different entities. Just as the authors quoted in the previous subchapter understand it. Linked to the New Materialism and the fact that Latour cites human and non-human actors, their interconnectedness in the milk cycle makes sense. «*Instead of having to choose between the [very] local and the global view, the notion of network allows us to think of a global entity - a highly connected one - which nevertheless remains continuously local [...]*»⁴² The interactions between humans and non-humans, according to Viveiros de Castro quoted in the book *More-Than-Human*, are called «*equivocations*»⁴³ These multiple social exchanges of various dimensions are, as he explains, part of the same event.

An inspiration drawn from Maud Ellman and quoted by Bennett is the summary of the vibrant evolution of the farm's milk based on the research of this thesis.⁴⁴ My poetic summary encompasses the living stories we can see behind the milk. This type of reasoning underlines the theory of living materiality described by Bennett and allows a more open view of milk.



F1

«*Milk disintegrates in the human stomach thanks to gastric acids and the flora present, digested by the enzyme called lactase, tolerated or not. It influences the level of protein, fat and sugar, coming from a carton, a glass bottle or processed products such as cheese, yoghurt, from a machine room powered by electricity, from pumps that suck, from cows without horns, drinking water, eating grass and hay, coming from the soil where earthworms, insects and microorganisms recycle matter, where twigs grow, that once in the stomachs of the bovine will pass through the process of microorganisms and bacteria transforming the milk in acid, protein and fat, that will go to the mammary glands so that they secrete the substance that will pass through the magpie. This development becomes possible because of the sperm of a New Zealand or Irish bull stimulated by a cow to push to the act, of a fast-human movement to recover the semen which engenders after artificial insemination by the farmer's hand, a calf, which will drink the milk of its mother, later powdered milk, will be fattened and will be used as relief or will end up in the butchery, like its mother after many cycles of lactation. Repeat.*»⁴⁵

Humans are accustomed to milk through their mother's breast, a bottle, then for some, through the cow's magpie, for many, through the milk carton and, of course, milk is used in a multitude of food preparations.

Although it seems so simple to open the milk carton to let the white liquid flow, its production story is much more complex and profound. The following points describe selected stages in milk manufacturing, taking into account different living entities. I am aware that each section remains rather brief and only explains parts of these very complex steps. Nevertheless, this will be part of the knowledge used for the narrative of the practical part.

Land

The earth beneath our feet, made up of minerals and humus, forms the basis of life on the planet. It took a considerable time to form and make up the link between the different terrestrial layers.⁴⁶ The soil contains a multitude of living things, bacteria, fungi, insects and animals. There are, for example, arthropods (spiders), Staphylinidae and carabid beetles that feed on pests. The soil is also composed of a very large number of microorganisms that guarantee a healthy ground.⁴⁷

In the soil fauna, earthworms for example, were underestimated for a long time. According to Charles Darwin quoted by Bennett, they are as important as humans in the history of the Earth. They transform organic waste into fertile material for the soil life. Together with other organisms and microorganisms, they accomplish many tasks such as the aeration of the soil by digging numerous galleries. So they allow a better water absorption and support the rooting of the plants. They integrate dead organic waste into the soil and fertilize it with their dejecta (humus). These processes rejuvenate and clean the soil.⁴⁸ As explained by Darwin, earthworms do not act in precise mechanisms but adapt themselves to different materials or conditions and act accordingly. The work done by earthworms and other soil organisms is the basis of human life and what follows. By definition, they are also the basis of milk and our food. Without them, we would run out of workable soil. The work of all these organisms generates a multitude of effects which are themselves part of a whole. They are tiny actors with an enormous impact on our world.⁴⁹

Grass, Plants

The vegetation growing in the fields influences the air and in consequence the cows. At the level of the Earth's ecosystem, plants absorb CO₂ and convert it into oxygen. They also capture other toxic substances.⁵⁰

Florianne Koechlin, biologist and author, states that plants feel and communicate. Koechlin explains that they are part of a network together with trees, fungi and other entities. Plants send each other information about their needs or dangers. Corn sends a scent signal that attracts wasps, for example. The wasps eat the pest. More surprisingly, the corn recognizes by whom it is attacked. The scent gives off changes according to the pest. The plant also produces liquid signals in the soil during an attack from underneath. In addition, the corn alerts its other leaves and surrounding plants of the danger, according to Koechlin. Other plants are studied in this way, for example tomatoes or trees. Koechlin assumes that all plants communicate, help each other, call for help and coordinate. The biologist speaks about the languages of plants as dialects with similar words. Two different plants will understand each other even if their communication is dissimilar. In the forest and probably elsewhere, a fungus, the mycorrhiza, generates a higher symbiosis with the roots between trees and plants. Koechlin reports that studies have shown that the presence of this fungus increases connection and improves communication. Plants help and feed each other, a phenomenon explored in Basel, she notes. The biologist describes the *«WWW, not the World Wide Web but the Wood Wide Web.»*⁵¹ Walking around outside, imagining these communication channels which humans don't see is totally fascinating for her. Koechlin feels the symbiosis and not the individuality of the entities. This new vision is also part of the New Materialism with interconnectedness and life at all levels. In relation to the process of making milk, the pastures are therefore indeed alive and intelligent, providing the maximum to grow and survive.⁵²

Cow

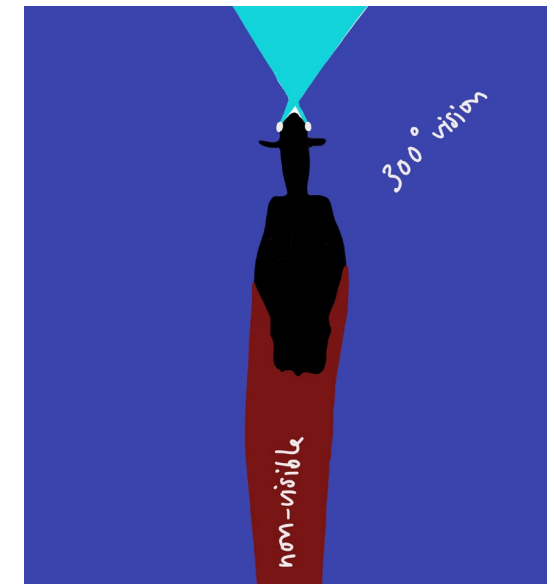
Cows do not perceive the world in the same way as we do. Cattle are prey (F3). Their wide-angle vision allows them to perceive surrounding dangers (F2, F5). Cows perceive less red colors. Light and dark colors are very contrasting. And their adaptation to light changes is longer than that of humans. Cattle hardly perceive rapid movements.⁵³ They see an echo (F7). If an entity moves too fast, the animal will be frightened and will be immobilized. If a cow comes to a shaded area, she does not perceive whether it is a hole or a safe area. She needs a moment to adapt and stops.⁵⁴

Cattle have binaural hearing. They are less able to distinguish the location of sounds than humans (F6). However, they can hear higher and lower frequencies.⁵⁵ Even distant odors can be discerned by cattle in a very fine way. For example, they can even smell pheromones. This gives them an indication of being in heat or fear.⁵⁶

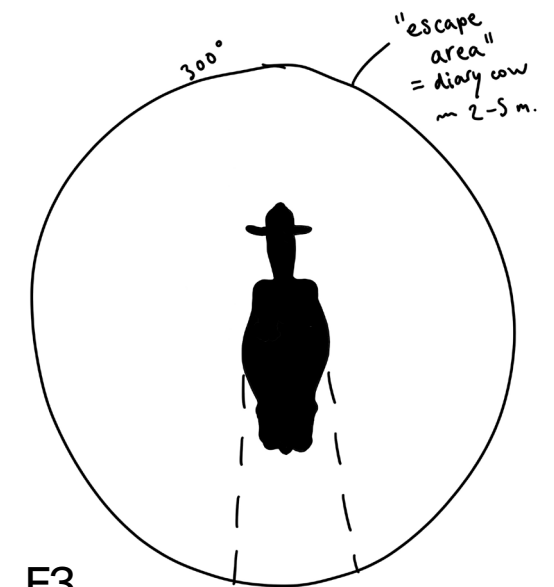
In society, the cow is mostly seen as an individual. This view is built on boundaries. In a more-than-human and New Materialism approach, the cow is a kind of home or an envelope. The biologist Scott F. Gilbert highlights the concept of the *«holobiont.»*⁵⁷ Based on this theory, the body is an *«assemblage,»*⁵⁸ an organization that contains within it *«communities of symbionts.»*⁵⁹

Each year a calf is born to stimulate milk production. The calf receives colostrum filled with nutrients and antibodies essential for its proper growth.⁶⁰ Dairy calves are used either as replacements or for slaughter.

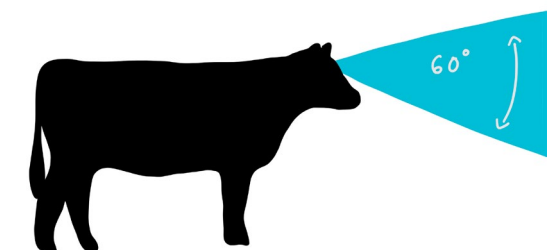
Together, the cows constitute a herd. They support each other and create internal relationships within this assembly. These holobionts form a new entity with dominant relationships. They take care of each other while competing in the herd system.



F2



F3

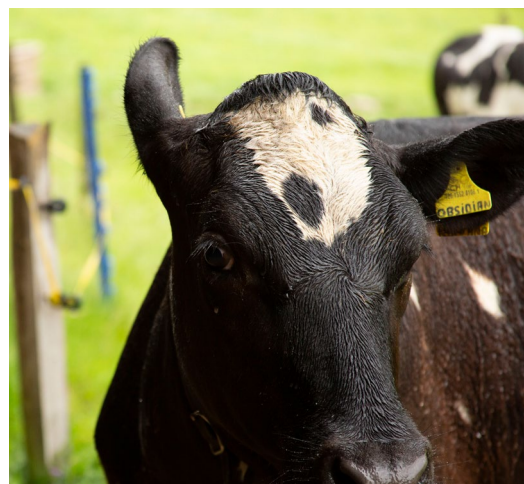
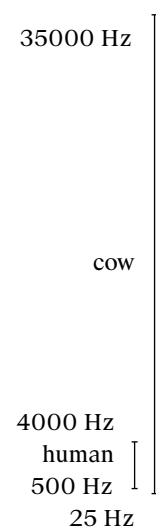


F4

53 DairyNZ 2018
54 National Dairy FARM Program 2017
55 Ibid.
56 Ibid.
57 Jaque et al. 2020, 13
58 Ibid.
59 Ibid.
60 Walz 2019



F5 Simulation of the cow vision.



F6



F7
Simulation
of the cow vision.

Inside the Cow

The cow is ecology unto itself. Some would say a machine⁶¹. One may say a world in its own. As Gilbert writes, the cow provides a home for «*a symbiotic community of microorganisms*». ⁶² The collaborative «*intra-action*»⁶³ of all these entities allows for the production of milk.

To feed itself, the cow will ingest food, in this case grass, without chewing it. These torn twigs end up in the rumen, the first stomach. Inside, up to seven kilos of microorganisms and bacteria work to destroy the swallowed cellulose little by little. These actants transform the grass and in particular, the protein and carbohydrates, into different acids. Cows ruminate. The grass «*paste*» then passes into the second stomach, the network. Pellets are sent back to the mouth for chewing. Cattle produce up to 200 liters of saliva per day for this transformation. After rumination, the remaining slurry goes to the third stomach, the leaf. Small actants extract the liquid from the material. This extraction ends in the abomasum, the last stomach. Finally, the small intestine extracts the nutrients. These will follow the blood path to the udder for the milk. The remaining waste will end up back in the meadow by defecation. ⁶⁴

The cow's menstrual cycle is quite similar to the human one. As a female mammal, the cow welcomes her progeny into her fold, bringing nutrients and vital needs through the placenta. Once the cow gives birth after nine months, the pituitary gland, a brain gland, will send a signal to the udder. Upon receiving this signal, the secretory glands will produce milk. ⁶⁵ The cow must birth a calf; otherwise she ends up in the slaughterhouse. Fertility plays a very important role.

In order to obtain a calf, bull semen is, of course, required. The semen is collected from prized males of different breeds. They are stimulated by a cow present during the operation. Their semen is collected in a very short time during the mating process. ⁶⁶

61 Jaque et al. 2020, 274

62 Jaque et al. 2020, 27

63 Jaque et al. 2020, 18

64 Genossenschaft Schweizer Milchproduzenten SMP n.d.

'Les vaches et leur ingénieux système digestif'

65 Jammes and Djiane 1988

66 Pichler 2017

Milk (F8, F9)

Cow's milk is composed of 3-4% fat. The protein content is about 3.5% while the lactose content is 5%. Its composition varies according to the breed of the cow. ⁶⁷

In reference to the properties of cow's milk from the pasture, omega 3 occupies a larger place in the composition of this type of animal milk. In comparison, milk from a cow fed on cereals will not have the same properties. The feed and breed of cattle influence the transformation of the cow's milk. ⁶⁸⁽⁶⁹⁾⁷⁰ In addition to food, animal husbandry and hygiene play an important role in the bacteria present in the milk. ⁷¹ During hygiene control somatic cells and germs must not exceed a certain number for processing and consumption. ⁷²

Milk contains mammary and immune cells. ⁷³ It also contains bacteria and germs. ⁷⁴ The properties of industrial skimmed, pasteurized, UHT treated milk are altered. According to the process, the protein level reveals the highest loss, 20% to 80%. The vitamins are also affected by a loss of 20% to 30%. ⁷⁵

Milk in the Human Body

Since the beginning of cattle breeding about ten thousand years ago, man has been drinking cow's milk. The digestion of milk sugar (lactose) by humans was mainly done since birth by the digestion of the maternal beverage thanks to a specific enzyme called lactase. ⁷⁶ With the consumption of milk in certain civilizations, the human genome has adapted by conserving the enzyme during adulthood, particularly in the populations of Northern Europe. ⁷⁷ Milk has therefore had a direct influence on the human body throughout the centuries.

67 Organisation des Nations Unies pour l'alimentation et l'agriculture n.d.

68 Burren et al. 2010

69 Stoll, Frioud, and Lobsiger 2007

70 Station de recherche Agroscope Liebefeld-Posieux ALP 2008

71 Jakob et al. 2011

72 Office fédéral de la sécurité alimentaire et des affaires vétérinaires 2022

73 Berchtold 2021

74 Cremo 2019

75 Van Beneden 2012

76 Vionnet et al. 2019

77 France 3 2013

Bennett quotes Blumenbach's «*formative force*» or Bergson's «*élan vital*,» a force described by them as being inside living materials, but not being able to live outside the material. In comparison with a soul that could live outside the body. Blumenbach explains, according to Bennett, this formative force as «*the «inborn, life-long active drive» that «exists in all living creatures, from men to maggots and from cedar trees to mold.»*»⁷⁸

This chapter, which zooms in and out of the milk cycle, allows a more precise understanding of the *actants* involved in the history of the dairy farm, of milk and beyond. Milk animates a more complex assemblage in other *actants* directly and indirectly in an organic, but also in an animal, industrial and societal context. This supports the fact that such a liquid encompasses physical and cyclical effects on certain people and other non-human populations upstream during its production. Next chapter guides us around the question of the effect of milk on beliefs and traditions.

→ Wrap-up

→ The «*assemblage*»⁷⁹ could be a global landscape, a combination where human and non-human build together.

→ The soil contains a multitude of living things; bacteria, fungi, insects and animals.

→ Plants are part of a network. They feel and communicate.

→ The cow is a «*holobiont*,»⁸⁰ an «*assemblage*,»⁸¹ an organization that contains «*communities of symbionts*.»⁸²

→ The collaborative cow «*intra-action*»⁸³ of microorganisms allows the creation of milk.

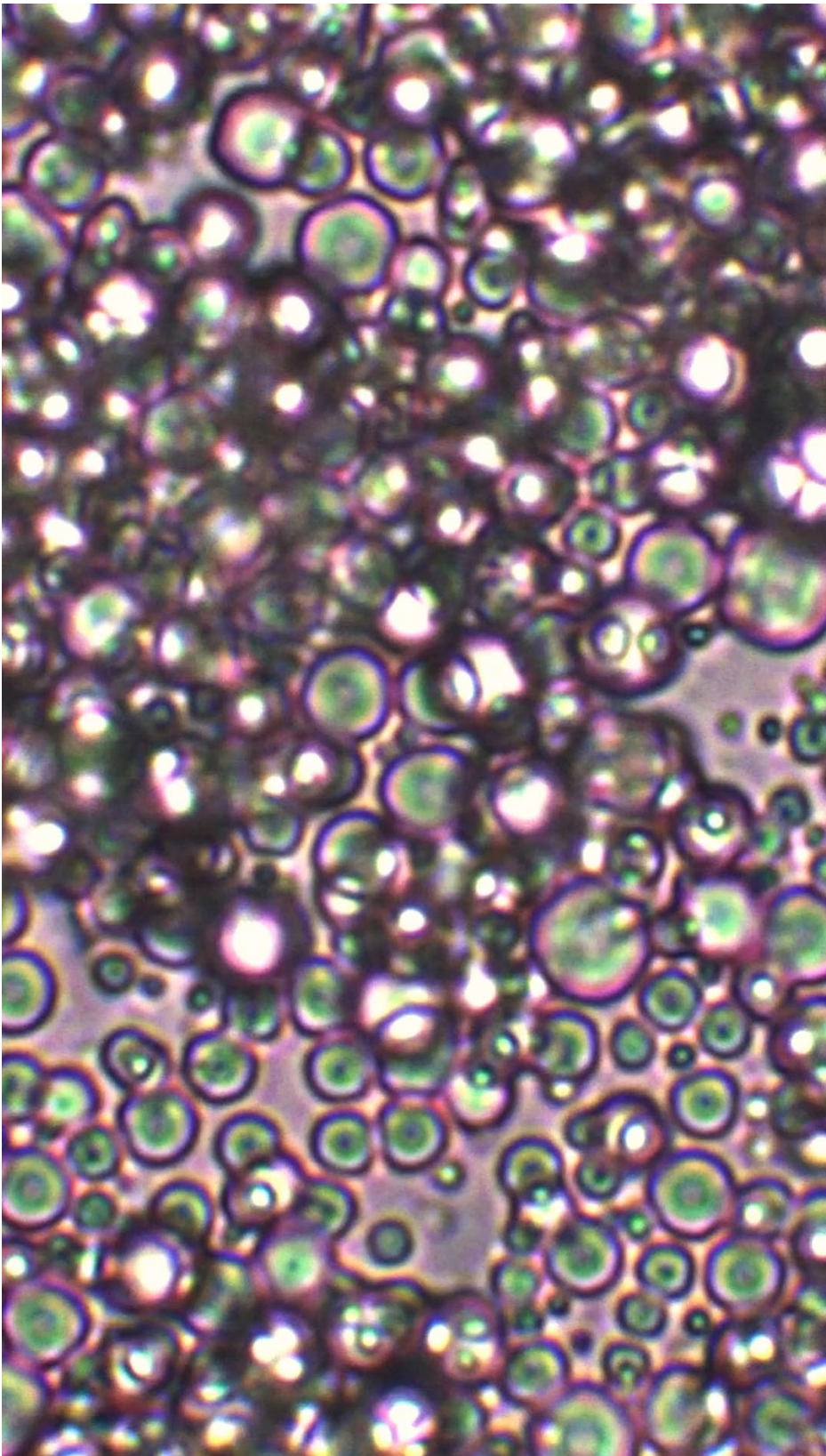
→ Milk contains non-exhaustively mammary and immune cells, bacteria and germs.

→ Milk has influenced the human body throughout centuries.

→ With such a product, a multitude of *actants* live until the creation of milk and beyond in its transformation.



F8

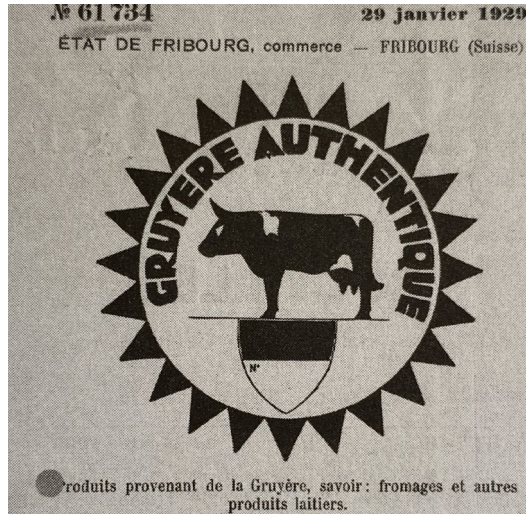


F9 Milk under the microscope.

78 Bennett 2010, «*Bildungstrieb*», para. 5
79 Jaque et al. 2020
80 Jaque et al. 2020, 13
81 Ibid.
82 Ibid.
83 Jaque et al. 2020, 18

Context of Investigation

Fribourg Treasure



F10 « Marque déposée pour le Gruyère, 1929. © Archives IAG »



F11 « Condenserie de Payerne, 1900. © MAHN, fonds Victor Attinger »



F12

In an ancient language called patois fribourgeois, which still spoken in some rural parts of the canton, the cheese was named *fre*, the fruit.¹ Milk was considered the fruit of the cow's womb. The hard work, together with the animals, have produced fruit. In Latin, the word means «*to enjoy*.»² Besides the words, where does this Swiss and more precisely Fribourg adoration for milk come from?

Cheese & Breeding Origin

Le Gruyère, symbol of Helvetia and Fribourg, has its roots in 1115.³ In comparison with humanity's point of view, the consumption of animal milk started about 10,000 years BCE, at the beginning of animal husbandry.⁴ This food rich in fat and nutrients becomes an interesting food supply. Objects similar to feeding bottles have also been found around 5,000 BCE (F12). Animal milk as a human beverage arrives rather late in the history of mankind, and for example Gruyère cheese (F10) is a «*newborn*.» The first archaeological traces of cheese were found in Poland around 7,000 BCE.⁵ Homer sings the story of a beverage during the Trojan War in Greece, around 9,000 BCE. The song speaks of wine mixed with goat cheese.⁶ Could it be the ancestor of our dear fondue?

According to Anne Philipona, a Fribourg Historian, the birth of the dairy industry in our region is situated between 1880 and 1914.⁷ Before that, small local craftsmen provided milk and cheese. Industrialization changed the dairy economy. The attached picture (F11) shows a condensed milk factory in Payerne in 1900. Even today, small dairies remain in many villages. This creates a large network of dairy organizations to provide milk and dairy products. *Le Gruyère* is still produced today by these artisanal village dairies.⁸ It is the most manufactured cheese in Switzerland.⁹ In Fribourg, 60% of milk is used to make cheese.¹⁰ In 2015, *Le Gruyère* won the award for best cheese in the world, in all categories.¹¹

1 Philipona and Steinauer 2017, 12

2 Centre National de Ressources Textuelles et Lexicales n.d.

3 Interprofession du Gruyère n.d.

4 Lehmann 2015

5 Bibliothèques municipales de la Ville de Genève 2019

6 Le Temps 2004

7 Philipona and Steinauer 2017, 39

8 Philipona and Steinauer 2017, 143

9 Philipona and Steinauer 2017, 169

10 Philipona and Steinauer 2017, 171

11 Philipona and Steinauer 2017, 178

Such adoration for milk is palpable in history. Firstly, as a source of quality energy and also as a quality food. Humans have been appropriating animal milk for their use only for a short time in the overall human evolution. This gives a glimpse of the beginning of the animal milk-human link. These discoveries lead the research to the beliefs related to the material effect of milk in order to understand the need for this beverage in the present society.

Myths and Beliefs

In this subchapter, we notice propaganda slogans summarized as «*milk makes you strong*.» This persuasive advertising emphasizes the effect of milk on the human body while keeping a myth around the issue. In this case, milk is similar to the «*Warrior Food*» described by Bennett, who quotes Nietzsche, a food of power because of its influence on the body. The latter evokes the «*material agency*.»¹² This liquid refers in a way to the first drink of mankind, the human breast milk. The influence of the beliefs and feelings that such a drink may have, leads me to a personal experience. Since I was a little girl, I drink cow milk. Sometimes, in gloomy times, I drink a glass of milk on my couch with *Oromaltine*. This act comforts my mind. It's like a balm on a little boo-boo. The food we ate as children is still very much imbued with old moments. Quoted in *Sitopia*, Nigel Slater, cook and writer, uses the example of cake. The arrival of cake on the family table gave him a sense of security.¹³

The alienation of milk and cows by advertising and the collective imagination must undergo a kind of «*demystification*.»¹⁴ Jane Bennett cites this popular method in critical theory (similar approach cited above with the critical design of Dunne and Raby) that tends to remove the veil from certain practices or things. In connection with milk, many processes are simply not brought to light, so as to remain romantic around this white beverage. I advocate the truth, as it presents itself, without too many filters that will attenuate, reinforce, or even demonize certain aspects. For example, nowadays, we still show a

12 Bennett 2010, « A Note On Methodology »

13 Steel 2020

14 Bennett 2010, « A Note On Methodology »

Swiss cow with horns when most of them don't have any, for security reasons, so as not to harm humans or other cows in free stalls.¹⁵ Industry and tourism use these romantic images of the past that no longer correspond to the current practice, even if there are some exceptions like the production of cheese from mountain pastures.

Origin of the Dairy Propaganda, World Wars

During the First and Second World Wars, Philipona says that, dairy products were considered as luxury.¹⁶ During the First World War, dairy cows were used as currency in exchange for coal and iron. From then on, the link between agribusiness and politics was clear. Many of the presidents of the milk and cheese producers' organizations or exporters were national advisors.¹⁷ In 1939-1945, after the abundance, the shortage returns. As in many areas, women, children and whoever else was able to milk were engaged. Towards the end of the 1940s, milk became scarcer despite an increase in demand. Due to the Wahlen Plan, food self-sufficiency program, more land was used to cultivate potatoes. During this mission, butter was rationed and priority was given to cheese, which served as a bargaining chip. Until 1945, production in the alpine pastures decreased, so traditions like the Désalpe or the boiler to make cheese become more or less commemorations of the past than reality.¹⁸

After-Wars

When after the war, milk production increased again, the government promoted milk at school (F13), which students don't necessarily get at home. In the 1930s, Basel started this distribution and other cantons, such as Fribourg, followed. Philipona cites two aims for this more urban than rural approach: to get rid of surplus stocks and to promote health.¹⁹

The effect that this *actant* has on the human body is highlighted in a large number of advertisements, films or even theaters in Fribourg. Slogans such as in the «*Milk Song [by] Auguste Rody, music teacher in the city's elementary school:] Boys and girls in our city have[,] bright eyes[,] red cheekbones[,] a beautiful air of health[,] and that's thanks to what[,] everyone will tell you[,] it's good milk so tasty, so sweet[,] it's good milk, the good milk of our homeland.*»²⁰ At that time, raw milk had a bad reputation. Pasteurized milk was the star. Raw milk was referred to be «*a vehicle for disease... [with] pernicious germs... [while pasteurized milk was] the delight of the schoolboy/[girl], the worker's comfort, the sportsman's stimulant, the elderly tonic and the children's delight [...]*».²¹

«*Swiss youth, do like your ancestors, drink milk, lots of milk!*»²² The promotion of milk is also done directly in the streets of the cities (F15) or in the army to raise the morale of the troops as quoted in a propaganda newspaper (F14). The economic crisis of the interwar period pushes the government to help farmers in difficulty throughout Switzerland.²³ It is at this time that in Switzerland milk takes on the image of a strong and reassuring drink.

The Glorious Thirty

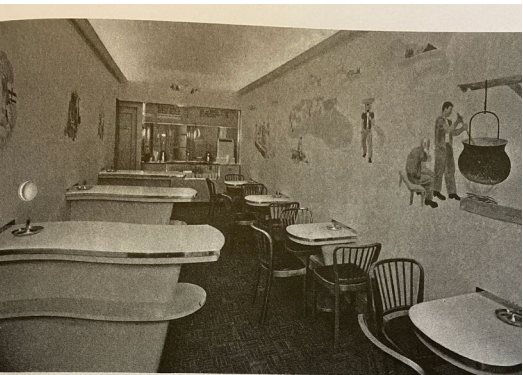
The dairy industry got comfortable. Milk was consumed less as a drink and more as processed products. Yoghurt-type preparations, special cheese, baby powder come into play. With the factories, the range of transformation widens. The milk carton became very practical, especially in the urban parts of the country. On the farmer's side, productivity raises constantly thanks to the modernization of techniques, the improvement of the performance of cows, genetic selection and chemical fertilizers, as well as mechanized milking. This again led to overproduction.²⁴ In response to the decline in the consumption of milk, the «*Central Propaganda of the dairy economy*» launched a new trend, the milk bar.²⁵ Similar phenomena occur in New Zealand in the



F13 « Distribution de lait à l'école, Bulle, 1924. © Musée Gruérien, fonds Simon Glasson »



F14 « L'industrie laitière suisse, 1934. © Archives IAG »



„Le lait est le seul aliment parfait !” a dit Edison

Qui ne connaît ses merveilleuses propriétés et celles des produits qu'on en tire ? Vous les répéterait sans doute prêcher devant des convertis ! « La Fermière » a voulu contribuer à ses bienfaits en facilitant sa consommation. Elle a donc créé cette nouveauté à Lausanne,

Le bar laitier

Chacun peut, en passant, venir y savourer la spécialité de son choix : yoghourts naturels ou au jus de fruit, coupes rafraîchissantes, laits chauds ou frappés, les fins petits bries battus en crème, les sandwiches au fromage, brel, toute la gamme des choses délicieuses que « La Fermière » offre en toutes saisons.

Les spécialités du bar laitier sont préparées par un cuisinier professionnel qui renseigne volontiers sur la préparation des mets au lait ou au fromage.

F16 « Brochure publicitaire La Fermière, Lausanne vers 1950. © Archives IAG »



F15 « Distribution de lait en ville, Bulle, vers 1930. © Musée Gruérien, fonds Simon Glasson »

15 Sterchi and Sciarra 2011

16 Philipona and Steinauer 2017, 87-88
17 Philipona and Steinauer 2017, 75-77
18 Philipona and Steinauer 2017, 126-129
19 Philipona and Steinauer 2017, 92

20 Philipona and Steinauer 2017, 91
21 Philipona and Steinauer 2017, 93
22 « Le lait à l'école, » in Bulletin pédagogique, 1933, p. 96, quoted in Philipona and Steinauer 2017, 93
23 Philipona and Steinauer 2017, 95
24 Philipona and Steinauer 2017, 136, 151
25 Philipona and Steinauer 2017, 133



F17



F20



F18



F19

34

1930s²⁶. These milk bars (F16) offered a wide variety of dairy products. In addition to yoghurts and ice creams, cheeses were sold, as well as the drink with milkshakes or hot chocolate. We discover then slogans like on the attached publication, «*Milk is the only perfect food!*»²⁷ In spite of propaganda attempts, the government wanted to impose quotas on production; (there is even a suppression of 5687 dairy cows in the lowlands).²⁸ In the search for improved production, the people of Fribourg lost one of their symbols, the black and white Fribourg breed in the colors of their flag. In the 60s and 70s, milk was no longer considered as a staple food and its sale was liberalized by the Migros. Before that, milk was delivered by milk carriers to the homes by the farmers!²⁹

Dairy Product Advertising

Swiss milk advertising over the past decades has played a lot with the anthropomorphized cow, as far as Swissmilk is concerned. Their mascot, Lovely, tap-danced for the first time in 1993 (F17). The slogan used at that time was «*Milk gets you in shape.*»³⁰ To this day, all types of sports are included in campaigns; Lovely plays soccer, does ski jumping, mountain climbs, does parkour, etc. The brand goes even further by comparing the cow to a woman in Annabelle magazine (F18). Doe eyes with mascara and a glossy peel, Lovely proudly strikes a pose. Since 2018 the humanoid mask has been used less. Commercially, the cow Lovely does what she pleases. She eats grass. The ending slogan also changes to «*When shopping, choose Swiss dairy products.*»³¹ By playing on patriotism rather than on physical strength, Swissmilk responds to a setback, around the turn of the century, on the «*lie*» concerning milk that supposedly makes you strong, for example in a book by Souccar, writer and polemicist.³²

The milk propaganda inspired by the 1930s still continues. The use of milk as a warrior food, mentioned earlier in this thesis, is the guideline for Swissmilk at least until 2018. This kind of advertising works quite well because it has a humorous

tone. However, such video spots alienate the cow by giving her some sort of superpowers while constantly leaving her with those horns that she often no longer has got in reality. Since 2018, the alienation is less pronounced. However, we still find almost exclusively green or alpine landscapes or still and always, horns. In 2021, Swissmilk decided to be more ecological by highlighting the natural mode of production aligned with Nature and explains the process, for example (F19). There is no longer a slogan in the video only the logo at the end.³³ They also release the sustainable label «*swissmilk green.*»³⁴ which pushes for even bigger demand through a higher milk price for farmers. Swissmilk goes one step further by filming mini reports of trainees on farms in the series «*Working, not blabbering.*»³⁵ The goal is clearly to show the farm life and the hard work (F20).

The use of such images and beliefs reinforces the alienation of milk and its production for the consumer. Even though Swissmilk advertisements are becoming more factual and ecological, the romanticism is still kept up. This subchapter offers a historical and current view of the state of the relationship between milk/cow/dairy farm and consumers in Switzerland. The vision that «*milk that makes you strong*» remains well imprinted until the early 2000s. Since 2018 this advertising has moved towards a more ecological image. One can also imagine it as a response to vegan alternatives. Such an analysis allows us to understand the societal relationship of milk for the purpose of positioning the project. It also demonstrates the national importance of milk and its derivatives for Switzerland.

→ Wrap-up

→ Around 10,000 BCE, humans began raising animals for their milk.

→ Government dairy propaganda promotes the beverage as a «*Warrior Food.*»

→ Swiss milk advertising has moved from anthropomorphizing the cow to demonstrating processes.

→ The ecological impact of milk production is strongly questioned.

26 'Tip Top Milk Bar in Wellington' 2013

27 Philipona and Steinauer 2017, 135

28 Philipona and Steinauer 2017, 137

29 Philipona and Steinauer 2017, 158-159

30 Genossenschaft Schweizer Milchproduzenten SMP n.d.

'L'histoire de Lovely'

31 Ibid.

32 Souccar 2008

33 Genossenschaft Schweizer Milchproduzenten SMP n.d.

'L'histoire de Lovely'

34 Genossenschaft Schweizer Milchproduzenten SMP n.d. 'Swissmilk green

- Suisse'

35 Swissmilk - officiel 2021

35

The Farmer's Role

The evolution of the farms shows that they are expanding; at the same time, the number of workers per farm is decreasing. Mechanization and the development of the industry are the causes.³⁶ The average number of cows per farmer was 5 in 1946 compared to 36 in 1990. From 1964 to 2015, the milk production doubled while the number of producers was divided by five during the same period!³⁷ In comparison, according to Philipona, the topography of Switzerland as well as its laws will not allow the growth of 1000 cows farms like in Germany or the US, for example.³⁸ In 1999, the Swiss Confederation stopped guaranteeing milk prices. Since 1992, it has switched to direct support for farmers, initially to improve animal welfare. Around 2010, the direct payments then promote ecology, i.e., water protection, biodiversity (also landscape beauty) and animal welfare.³⁹ These state subsidies now account for 30% of farm income.⁴⁰

Nowadays it is difficult to find one's place as a farmer. They are business owners and have to follow a lot of rules. Office work is a growing part of their duty. Moreover, land is decreasing; *«one square meter of agricultural land is lost every second»*⁴¹ in Switzerland, according to Bourgeois, director of the Swiss Farmers' Union. Their role is cited as such in the Federal Constitution, *«[...] to contribute substantially to the security of supply of the population, the conservation of natural resources, the maintenance of the rural landscape and the decentralized occupation of the territory.»*⁴² Swiss agriculture produces 50-55% of the country's food needs.⁴³ The production of food is very expensive in Switzerland. It is cheaper to import. Food loses value. The price of milk the producers receive has always been a subject of dispute. In 1912, 45% of the family budget was used to buy food; in 2014 this percentage was 6.5%. In Switzerland and in the Western world, people spend more money on their Maslowian esteem needs, their housing or insurance. The USP (Union Suisse des Paysans) is

fighting to reduce the dependence of agriculture on the state through direct payments and sale prices that would allow a profit.⁴⁴ This approach is not far from that of Carolyn Steel's *Sitopia*, which tends to return food to its rightful value and local footprint, cited in the previous chapter. A part of the population follows this impulse, which pushes farmers to develop farm stores and direct sales or at markets.⁴⁵ The trend expanded during the coronavirus crisis.⁴⁶

Milk consumption is changing. There is a growing interest in organic, minimally processed products and in extracting the virtues of milk technologically for its protein, for example by the *«cracking»*⁴⁷ method.⁴⁸ Movements like vegetarianism, veganism or anti-speciesism, favor other types of products similar to butter, such as margarine or alternative vegetable milk. However, these products sometimes contain a lot of additives.⁴⁹

It can be said that from a Western point of view, milk is less popular than in the past. Ecological questions are pushing consumers towards other alternatives. Should we no longer drink or eat milk products? The Chinese, for example, are eating more and more of it; Switzerland exports milk to China, where per capita consumption has risen from 1 to 17 kilos in 15 years since 2000.⁵⁰ It is a production that is intimately linked to that of meat. The problem goes far beyond the consumption of animal products or not. In the same line as the Slow Food movement mentioned before in this thesis, and *Sitopia*, and Bennett, food has to become important again. Production, matter, living, effort and effect should be visible and conscious. The problem is serious. As Steel claims, it requires the awareness that should not be limited to eating in vitro beef created by Google or plant-based meat with a list of manufacturing ingredients as long as one's arm.⁵¹ Humans should return to a slower lifestyle instead of running around looking for too simple solutions that hide a much bigger general problem, overconsumption.

36 Philipona and Steinauer 2017, 170
37 Philipona and Steinauer 2017, 152
38 Philipona and Steinauer 2017, 179
39 Philipona and Steinauer 2017, 167
40 Philipona and Steinauer 2017, 175
41 Philipona and Steinauer 2017, 172
42 Philipona and Steinauer 2017, 176
43 Ibid.

44 Philipona and Steinauer 2017, 75
45 Philipona and Steinauer 2017, 176
46 Erard and Duruz 2020
47 Desmarecaux 2020
48 Philipona and Steinauer 2017, 176
49 Philipona and Steinauer 2017, 177
50 Philipona and Steinauer 2017, 174
51 Steel 2020, «Meet Wave»

Rooted Traditions

Anne Galloway describes sheep farming in New Zealand notably as an ancient colonial tradition which is now causing environmental disruption to New Zealand's life and land.⁵² On a smaller scale, the milk in Fribourg follows to some extent the same logic. According to her, as there is a great tradition around this breeding, Galloway and her team work with the idea of inspiring more give-and-take vision in this system and not only taking without any return.

Désalpes and Poya

Fabien Kolly, alpine cheesemaker in Corbières Fribourg, is taken in by «*the silence of the cows eating [...] the crackling fire [...] an ambiance, a special atmosphere.*»⁵³ The *désalpe* is the transhumance of the animals raised in the mountains during the summer period (F21). They come back down from the mountains at the approach of winter. For many farmers who own mountains and for Kolly, it is a precious moment in the year. The cows are decorated with paper flowers and fir branches. They carry their bells, a symbol of family and time. It is a commemoration for the cows and their work, according to the cheese maker. The *armaillis* (name given to the men who come down with the cows during the *désalpe*) are wearing their traditional costume. The women wear the *dzaquillon*, which used to be the working dress in the fields (F22).⁵⁴

This descent from the mountain pasture and also the ascent of spring is anchored in a tradition of *poya* painting (F23). These paintings illustrate the transhumance. Initially they were used to make the inventory of the herd and the material leaving towards the mountain pastures, but also to decorate the farmer's houses.⁵⁵

The milk in Fribourg has a song «*Le Ranz des vaches*»⁵⁶ or «*Lyoba*,» originally sung in the Fribourg dialect, especially during the *désalpe* or *poya* as well as at the *Fête des Vignerons*, for example.⁵⁷ Also the local ice-hockey team sings

it together with the public each time they play. Everybody knows it by heart. In spring and autumn, Fribourg still clings to the traditional «*poya/désalpes*» practice. According to Philipona, the sometimes idealized countryside past is celebrated, with folk and tourists whose link with the world of peasantry is neither important nor strong.⁵⁸

Cow

In Switzerland, the cow is a strong symbol. Already in 1386 at the battle of Sempach, it is the icon used against the Habsburgs lions.⁵⁹ The Swiss were perceived as rich cowherds, a mocking term that was later revived in the 16th and 17th centuries by «*guardians of cows.*»⁶⁰ They are therefore a people whose cows are omnipresent for many of them. We owe the milk to the cow, as well as cheese and chocolate. Most of us meet this animal on their weekend walks or during vacations. It refers to the childhood as we see in the analysis of an experiment in one of the next chapters. Because of its rather peaceful character, the beast has a good image. It is loved although it imposes respect because of its size. Each dairy cow receives a name at birth; it is mandatory.⁶¹ There are even beauty contests for cows that are called expo, as in Bulle City (F24). Its symbol is reinforced by tourism and advertising as we have seen with Lovely from Swissmilk. The famous little wooden toy cow has been loved for many generations of children. It also became a well-sold souvenir object.⁶²

The popular cowbells, used in particular for the *désalpe*, are passed on from generation to generation. They are marks of the past, according to Kolly.⁶³ They are quite expensively decorated and embroidered with significant events for the farming families (F25).

The Pastures (F26)

In management systems where cows feed on grass or in alpine pastures, it is the soil and the weather that determines the rhythm. In the Fribourg pre-Alps, Fabien Kolly explains that the herd moves



F21 Fabien Kolly during their *désalpe*.



F24 «Junior Expo», Bulle, 2021.



F22 Traditional clothes of the *désalpe*.



F23 Poya Painting, Michel Baeriswyl, 1971.



F25 Cowbell.

52 Speed 2020, 0:14:20–0:16:00

53 La *désalpe* - Canal Alpha 2021, 0:00:35–0:00:50.

54 La Gruyère Tourisme n.d. 'Dzaquillon'

55 La Gruyère Tourisme n.d. 'Poya'

56 Müller n.d.

57 Brunner 2019

58 Philipona and Steinauer 2017, 165

59 Huszno 2019

60 Ibid.

61 Barth 2018

62 Laz 2020

63 La *désalpe* - Canal Alpha 2021

and so does the material for the production.⁶⁴ Therefore, as is often the case in agriculture, Nature decides on the basic pace, for example the growth of the grass. The human being has to adapt to it but may also have an influence.⁶⁵

Cheese Processing and Village Cheese Dairies

Kolly describes the transformation of milk into cheese as fantastic. The living material is solidified by heating processes. The raw liquid is fragile, but the transformation allows a mode of conservation over months.⁶⁶ For *Le Gruyère* and many other cheeses, after the raw milk is collected from the cows, the preparation of the cheese begins with the curdling process. The addition of lactic ferments from the whey and «*[/.../] rennet, a natural ingredient extracted from a calf's stomach [/...]*»⁶⁷ makes the milk coagulate. The result obtained, delicately heated, is then stirred by large knives. After some time grains will appear. The texture of these granules is controlled by hand. This material is put into molds and marked for maturing. The grains are passed through salt water and then left in the cellar where they are regularly rubbed.⁶⁸

A strong Fribourg tradition is the *fondue*. Everybody identifies with it and has their personal recipe, mixing superstition and skill. It may turn or be succulent, in any case the cheese mixture is important. Each region has got its own fondue; in Fribourg, it is the «*moitié-moitié*» which combines *Le Gruyère* and *Vacherin*.⁶⁹ Benedikt Wüthrich, who produces *Le Gruyère* cheese in Auboranges, talks about milk as an animal to be tamed. He emphasizes that milk is alive and varies a lot. Wüthrich won the World Fondue Championship in 2017–2018. «*You have to feel all the flora, and the love that has been put into the product.*»⁷⁰ Cheesemakers recognize milk as a living material because they process it and have to know it. According to Wüthrich, the *fondue* is never the same, even if the recipes are the same.

Milk and cheese are alive and unique each time.⁷¹

The traditions described in this subchapter demonstrate an approach to milk from the human perspective. In the examples cited, the human is aware of the living entity. However, there is no change of perspective towards other living entities.

→ Wrap-up

- Farmers oscillate between landscape maintenance and food production.
- The farms have grown in size although the human labor force is decreasing.
- The family budget for food is drastically reduced.
- The cow is a strong symbol in Swiss culture.
- Traditions like *désalpes* are rituals of the commemoration of cows and milk.
- In a cow management with grass, it is Nature that dictates the rhythm.
- Milk producers and transformers are aware of the vitality of milk in itself.
- Milk is the result of hard work and know-how.



F26 Cows in the pasture.

64 La désalpe - Canal Alpha 2021

65 Eggertswyler 2022

66 La désalpe - Canal Alpha 2021

67 Interprofession du Gruyère n.d. 'Le Gruyère AOP - La Fabrication Du Gruyère AOP - Fromage - Tradition - Suisse'

68 Interprofession du Gruyère n.d.

69 Philipona and Steinauer 2017, 160

70 La fondue - Canal Alpha 2021

71 La fondue - Canal Alpha 2021

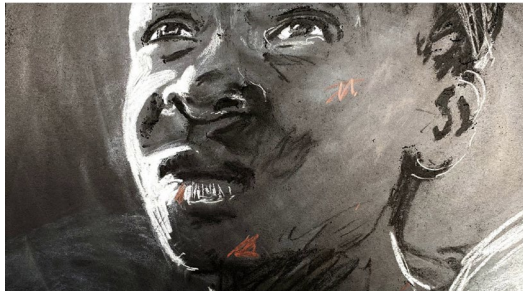
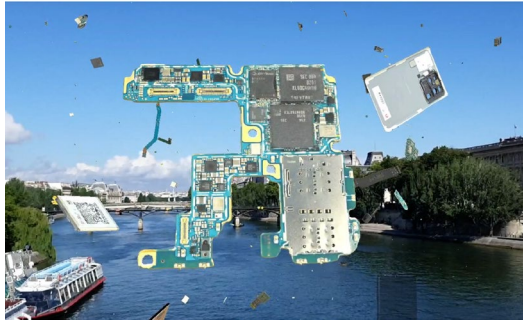


F27 Manufacturing processes, Laiterie du Mouret.



Projects and Case Studies

Awareness Experiences



F28

The research of study projects reinforces this thesis by analyzing creations that support the same type of objectives. Such research and reflection help to pose a concept according to logic that has already been followed. In a mix of ethnographic design projects, awareness and blending of materials, this non-exhaustive list guides me in my design journey.

Seven Grams¹ (F28)

The *Seven Grams* project from Karim Ben Khelifa, war correspondent and photojournalist, employs the smartphone as a medium to talk about its material origin. In 2019, the number of mobile subscriptions surpassed the number of humans living on Earth.² The manufacturing of electronic devices, such as smartphones, requires precious and special materials. These materials are mostly extracted in the Democratic Republic of Congo, under very harsh conditions in artisanal mines. Khelifa uses the smartphone and augmented reality to bring the source closer to the consumer.

He wishes to sensitize young people to the human costs of such devices in order to encourage them to be aware and to take action. For him, new technologies are an efficient way to transmit a message to the younger generation. Seven Grams is a smartphone app. The augmented 3D reality is directly at home or in the environment of the user. The narration interacts with the vibration function or the area of the screen. In the second part, an animation tells the story of a minor child forcibly taken by a militia. The animation of a charcoal texture brutally explains the facts from a narrative as well as a visual point of view. The last part uses a 3D diagram to explain the effects and doubts about certain economic policies.

This project tends to raise awareness with a view to action through the recycling of appliances or activism towards the companies concerned. From a personal point of view, I got carried away in the story. Nevertheless, the addition of physical and visual interaction increases the immersion in the narrative.

→ One of the goals of this milk project is to bring transparency and raise awareness about the origin and multispecies effort of the beverage.

¹ Lucid Realities n.d.
² Jonniaux 2019

I retain here the multi-part narration that paces the story and keeps the attention. The direct interaction of the user is clearly requested by a voice-over. Sometimes the voice disturbed me and took me out of the story although the explanations are simple to follow and clear. Sound effects help the contextualization and are necessary. The narration explains the facts without judging the use of the cell phone, remaining subtle in this way. The personal story of the minor brings an important dimension of empathy. The end which becomes more militant is a little disturbing although the proposal of solutions is necessary. *Seven Grams* is in line with the inspirations of this project on the milk origin. I'm not talking about human exploitation, but about the use of animals and a living effort that is finally part of a global over-consumption that endangers our planet.

Powers of Ten³ (F29)

The human so pretentious, but finally so small. The 1977 film *Powers of Ten* by the Eames office shows the immensity of the macro galaxy compared to the «*galaxy*» of the micro in an atom. After a short introduction and setting the scene, the narrative begins one meter away from the surface of the Earth by focusing on a couple's picnic blanket in Chicago. Every 10 seconds, the camera moves back to the sky by ten times the initial distance. The de-zoom goes up to 100 million light years where «*...the galaxies [are] like dusts.*»⁴

The voice-over quickly explains that each scene is multiplied by 10. A touch of dry humor brings a slight sarcasm for my taste. Thus, we feel a certain irony of our place as humans. This film follows the concept of the New Materialism by considering the infinitely small as well as the infinitely large, reducing the importance of the human being.

→ In relation to milk, zooming in on the efforts of the smallest cells allows us to understand a part of the production activity. My goal is not only to create a linear narrative in the materiality, but multibranch threads. That is to say, a possible zoom into different «*sections*» of the production that possibly creates de-zooms. An example is, I hope, clearer. Let's say we start with milk. The zoom in liquid shows us its composition, but

³ Eames Office 2010
⁴ Eames Office 2010, 0:04:52

ends up showing us a branch of narration like, for example, genetics, with artificial insemination or choosing another branch, the milking machine, the human behind it, etc. The «*zoom*» would then be a means of narration in a kind of family tree encompassing different layers of information at more or less in depth.

Via Lactea⁵ (F30)

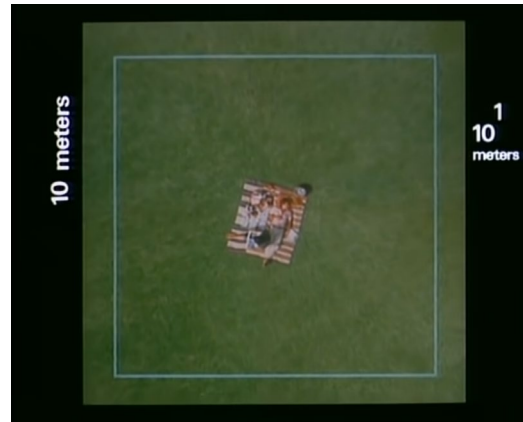
Via Lactea is a photographic project by the artist, Alfio Tommasini realized from 2015 to 2019. The work is gathered in a book with a white cover collecting pictures that testify to animal husbandry, to alpine life in Switzerland and poetically describes an ode to the Alps, to cows, to a tradition. The textual part is divided into three acts, the Departure, the Metamorphosis and the Love Letter.

The images paint a landscape, that of the *Via Lactea*. We see cows, peasants, buildings, rocks, mountains, landscapes. The photographic point of view is realistic. The only perceptible filter is the snow and its flakes. Tommasini depicts things as they are with all types of shots. We feel beauty, pride, hard work, cold, sterile and dirty, love and hardness. The white is the thread of a foggy or night-lit narrative of a winter period with short days. The authenticity of the project brings a beautiful and hard truth of men, women and children who let themselves be led by nature and the beasts as Tommasini writes, «*In truth it's like that, people follow the animals, not the other way around.*»⁶ Temple Grandin writes that «*man and animal are meant to live together.*»⁷

→ It is this kind of authenticity that I would like to achieve. The practice tends to depict the picture of milk as a whole with a farm as a basic example while keeping the human aspect as poetic or harsh as it is.

Everything⁸ (F31)

David Oreilly, computer artist and researcher, created an interactive game or experience about «*everything*» in 2017. In *Everything*, the player can change their point of view to all kinds of ani-



F29



F30



F31



F32

mals, objects, cells, galaxies, etc. The experience puts the human back into a whole of which he is ultimately just a single piece of the puzzle in the same idea as *Powers of Ten*. The adventure is played in a 3D scene with animations that do not exactly reflect reality.

Oreilly quotes Alan Watts, «*Whoever you are, whatever you are and wherever you are, you're in the middle – that's the game.*»⁹ It is the perception of that particular entity that is authentic. As described in the chapter on ethnographic storytelling with Anne Galloway, each living being on this earth has its vision. In the game, the perception does not change; it is the point of view that changes. If this were also changed, the experience could be increased tenfold.

→ Why not change the point of view of the story to that of the cow or calf, the bacteria in the abdomen of the bovine, a milk cell, the sperm of the bull, the grass, the earthworm, the microorganism or the human? This may help in the creation of empathy as Foster said.

Refuge for Resurgence¹⁰ (F32)

Between art and design, London-based studio *Superflux* presented an installation about the more-than-human at the Venice Biennale. Under the artistic direction of Anab Jain and Jon Ardern, the speculative installation *Refuge for Resurgence* addresses communal equality among living species in a future where Nature has an abundant place beyond human constructs. The studio creates a staged banquet where a multitude of species have their «*place*.» The dishes seem to depict vile human impacts on Nature. The cutlery mixes natural materials like wood with plastic. The futuristic vision portrays a new world where species work together on the basis of an old destroyed world. It brings together, according to the designers, «*a fox, rat, wasp, pigeon, cow, human adults and child, wild boar, snake, beaver, wolf, raven and mushroom*»¹¹ in a «*discussion*» unity around the table.

→ The artistic appeal of this installation lies in the desire to restore the vital forces of the world. The human being in his perception is above everything. However, a too vertical scale of power favors the dominant. From a critical point of view, one may argue that this installation anthropomorphizes at a high level the more-than-human entities. The table, the cutlery, the seats are human objects par excellence. For the milk project, I am inspired by this leveling of the different entities. However, I keep in mind the interaction in the other direction where the human would imagine being in the place of the other and not the more-than-human in the place of the human.

Cow Documentary¹² (F33)

Andrea Arnold, British filmmaker, reveals the life of Luma, a dairy cow. During four years, she films the life of the animal offering an intimate and empathetic insight. The film begins with the birth of a calf. This is the aim action of the dairy cow in order to have milk as described in the subchapter on the more-than-human and by Arnold. Without voice-over, the documentary focuses exclusively on the cow, leaving the human in the background. Rico Galliano, moderator at Mubi, describes the film as purely immersive. Arnold resents that, after all this time filming her, Luma looked at them differently. According to her, Luma felt taken into account, valued. The filmmaker explains that she learned a lesson. When she sees humans after this experience, she considers them more, gives them a special, deeper attention. Arnold and Galliano compare human emotions to Luma's. As mentioned above, anthropomorphism is to be avoided in animal studies. The human is only imagining. This project is not scientific but artistic. By imagining the animal feeling the emotions that humans think they are experiencing, the immersion increases. The positive point is empathy. Arnold builds on this in the sense that the eye contact scenes with the animal are very present. According to her, this vision of the animal's head, of these *“expressions,”* conveys a particular sensation to the human who watches these images. Andrea doesn't want to get into Luma's head, she says, but to show in images her reactions to her world. On the big screen, in the cinema with a quality sound, the immersion is intense according to the director and the moderator.



F33



F34

→ In relation to this milk project, Arnold's approach inspires the visual narrative. While the cow is the main element that produces milk, the overall living process goes further and encompasses more entities in comparison to the distinct purposes. The film *Cow* inspires visual experiments that are part of the installation. In the chapter on the artifact, I summarize the narrative choices, having tested the video in one of the iterations. This very direct vision of the cow remains a strong point in the human empathetic mimicry of the animal's emotions. The videos made on the farm are, therefore, used on the digital platform as documentation, in complement to the installation.

Sounding Soil¹³ (F34)

Sound designer and scientist Marcus Maeder listens to the soil. Under our feet, the earth is alive. It is teeming with a large number of animals. The systems for measuring its activity are diverse. Maeder uses innovative microphones. The noises in the ground are not strongly audible. Maeder has developed adapted sensors that amplify the sound recording. By taking measurements at various locations in Switzerland, the scientist describes patterns and compares the animal activity in the soil. With the soundtracks generated for the study, he set up an installation outside the Paul Klee Center in Bern. A black box with an earthen roof offers visitors the opportunity to listen to the sounds of different Swiss soils in a certain darkness. They are immersed in the ground. While some soils do not produce much sound, others offer fascinating acoustics. On a Swiss mapping of the sound recordings, surprisingly, one recording was made in Ependes in the Canton of Fribourg.¹⁴ It is the town of the Crausa farm. The result offers friction sounds and small whistles, for example. With his project, Maeder develops a medium of awareness of the activity of the soil.

→ *Sounding Soil* particularly inspires me for the practical part. Having sounds of farm animals, it makes sense to also generate sounds for the soil or grass or in the cow for those smaller, more difficult to imagine worlds. The awareness of the life force of the different elements in the process of creating milk goes towards the aim of giving value to the labor of living symbiosis.

Feral Atlas¹⁵

Navigating the Anthropocene, *Feral Atlas* allows a new perspective on mappings of the human effect on ecologies. The project is huge. It is an interactive website that follows the logic of maps in which the visitor can navigate as well as zoom in and out. Tsing, Deger, Saxena and Zhou depict a complex interconnected landscape. They blend facts and actions to show an overview of the more-than-human in the Anthropocene while also allowing for focus and precise explanations. The atlas lives up to its name in its complexity linking drawings, text, video and sound to better imagine the scope of the problem. The researchers claim that explanation is necessary before action. *Feral Atlas* is a masterpiece of knowledge and awareness.

→ This project is most captivating. The stories are linked on all sides. The cartography expands violently. While navigating, the visitor gets lost in what seems to be an infinite amount of knowledge and research. This idea of giant mapping pushes me towards a parallel solution for the digital practical part. The creation of a summary platform of the context would help increase the awareness of the cost of milk as a whole. The multiple layers of information also join my approach of the installation mixing sounds, videos and animations.



F35

Ethnographic Design



F36

Counting Sheep^{16|17} (F36)

The human and Swiss history of cow's milk plays an important role in its consumption. Anne Galloway, mentioned earlier in the epistemological section, did a project with students mixing tradition with the current reality of sheep farming in New Zealand. Galloway's philosophy guides the ethnographic process towards a speculative method that allows for the assembly of symbols into a new vision. Mixing tradition and innovation, various speculative experiments bring an alternative perception of NZ Merino sheep farming where sheep are used for their wool. *Counting sheep* includes, for example, the design of a speculative wool weaving mechanism replacing plaster for broken human bones. Her approach brings an old weaving technology to the forefront. In a way, she restores the power and importance of the product. In this project, she also criticizes the genetic selection of these sheep through visuals representing an absurd technological modification, for example.

→ Galloway's approach in these speculative projects takes into account field research. Drawing on reality, she pushes to adapt or modify known facts to turn them into a twisted critique. What interests me about the milk project is its relationship to ethnography as a basis for design. It is not just digital or book research. She also advocates direct action for an immersion in the theme. So she inspires me to use this spontaneous method in experimenting with the farm context. Moreover, her way of showing a new facet of a subject pushes me towards highlighting points that may seem insignificant to some consumers or humans in this milk thematic. That could be the living work of the grass, the soil or the inside of the cow, for example.

The Truffle¹⁸ (F37 – F38)

Ensamble Studio, an architectural firm in Madrid, designed a project in 2010 that is directly related to the soil and an animal, the cow. Digging in the earth to pour concrete, they created an artificial stone. Before concreting the walls and top, they arranged bales of hay and then cover the dry mate-

rial. After the consolidation of the concrete, they used a calf for a year to eat the inside. Paulina, the calf, became a cow and the open-hearted stone provided an inner space. Having cut the two edges for a bay window and the entrance, the project became a vacation room in the countryside.

→ The architecture studio used the soil to form the base of the exterior envelope of their home as well as a cow. These non-human entities became, in my opinion, also designers included in the process. This concept gives me the idea to use the soil measurement method developed by the Agroscope as a design tool for the installation. The researchers set up the slip project where any person can order the fabric and bury it in the soil. After some time, the cotton gets eaten little by little by the life of the ground. The method will be described in detail in the installation process.¹⁹ Such a piece of fabric is the irrefutable proof of a fruitful living activity.



F37

In conclusion of this case-analysis chapter, these examples serve as inspirations and argumentation. They highlight similar aspects to the milk topic and raise issues related to empathy, changing perceptions and blending boundaries between materials. Each of these projects provides an innovative way of looking at a subject and would be adaptable to the theme of milk and the dairy farm. They are in a way the guidelines of the project, the existing bases that give support and consolidation especially for the practical part.



F38

Context Exploration

The ethnographic and creative exploration of the human and more-than-human landscape of the farm determine the influence of the various entities on each other in the discovery of the «*assemblage*,»¹ as Tsing describes it, necessary for milk production. It includes the main aspects of the farm, the places, the people, the animals and the product. Exploring all these elements allow for an overall understanding. This chapter can also be seen as a kind of journal of experiences and observations. It is therefore full of personal interpretations.

This exploration remains humble. In Galloway's sense, in this process (and in life of course), I owe respect and humility to all human and non-human entities. The humans and other living entities on this farm know better than I do what they are doing. The animals or other species are in their routine that should not be highly disturbed. The exploration is in no way a show of strength or knowledge, but a walk along a wire above the farm like a tightrope walker who stays focused in order to not fall (illustrated in the attached poster F39).



F39



F40



Crausa Farm

The main place of physical investigation is the Crausa farm in Fribourg (F40). The farmers there are José, Laurence and Lucien Eggertswyler, who is also my partner. It is a medium-sized farm in Switzerland with around 50 dairy cows, about 10 heifers and 10 calves. They also raise chickens for meat to the tune of about 4000 eight times a year. A dog trained to manage the herd, Mac, also works on the farm. The premises are, of course, occupied by many animals and other species such as semi-domesticated cats, mice, moles, wild animals, insects, bacteria, plants, herbs and so on.

Most of the information about the farm cited in these texts comes from discussions and an interview in appendix with Lucien Eggertswyler, agricultural engineer and partner on the farm. An interview with Andréa Eggertswyler, retired farmer and mother of José, is also a reference.² The Crausa farm has seen several generations of Andréa Eggertswyler's family; her grandparents, her parents, her and her husband Gérald, her son José with his wife Laurence. And then we, Lucien and myself, will end up running the farm in the near future.

The Eggertswylers have been taking care of their dairy herd in New Zealand/Irish style since the early 2000s. They were among the first in Switzerland to change their breed and opt for this method. Their cows are «*Kiwi-Cross*.»³ They are selected to be fed only grass in a precise management of small grazing paddocks. This allows the grass to regenerate better according to the farmers' experience. Kiwi-cross cows produce less milk and are smaller than a Red Holstein, for example. Such a process delivers fattier, richer milk. It also reduces ammonia emissions due to absorption by the grass growth.⁴

The daily ritual of the Crausa farm for the production of milk is the following. At 5:30 a.m., after putting on their work clothes, Lucien and/or José go to get the cows from the pasture. Equipped with a bicycle, they open the yard. The cows know exactly what is going on; it has become a habit. They arrive quietly to the milking parlor. Mac, the dog, is sent to the pasture to make sure nobody is forgotten and to regroup them if necessary. Meanwhile, José and Lucien put down hay for the cows to wait in the stall until the milking is fini-

shed. Milking starts. This moment is described in the observations of this chapter. After milking, they will clean the barn. Once finished, if there is no snow or stormy weather, the cows are put back in the pasture. The other tasks of the day are very various. They bale hay in the summer, repair machinery, put up fences, go to the woods along with a thousand and one other tasks. Milking starts again at 4 p.m. and ends around 6 p.m.

Multispecies Exploration

Smell

When you arrive at the Crausa farm, one of the first points of contact is through your nose. A heartwarming fragrance fills you, mixing grass, animals and excrement. It may seem disgusting, but it is a rather pleasant smell. During milking, the white liquid perfumes the whole room with a round scent. On the side of the barn in the colder months, the hay smells like comfort, only one desire gets a hold of you – to lie down in it. As you walk through the fields, the fresh smell and pollen fill you with a feeling of pure air.

Vision

The colors of the farm tend towards natural hues. The mix includes the brown of the wood, the yellow of the straw, the pale green of the hay and the shiny green of the grass. The animals wear black, brown and white sometimes mixed in subtle shades and spots. The creamy white of milk varies in opacity depending on the location. The gray of the ground mixes with the green and brown of the excrement. Some machines come to color the whole with red, yellow or blue small touches, all desaturated by the dust. The cow's doe eyes enter quickly in direct contact. Its big and strong corpulence imposes respect. Its ears are on the lookout for flies as well as for hearing while swiveling. The gait is slow and majestic; its udder swings to the rhythm of its steps.

Touch

The cow's fur feels rough and soft at the same time, due to the layer of fat covering its hair. Its wet muzzle and warm breath caress the hand. At the touch, the animal shakes or bellows. In the milking place in summer, the ambient humidity reaches the skin and lungs creating a misty atmosphere and a feeling of warmth. The bare teats are very soft and flexible. The milking pump slowly massages and vacuums.

Hearing

The meows of cats sound at the first step towards the farm. The cows and calves graze on the grass, violently tearing off the grass blades in mass, causing a low «*scroutch*» and then chewing noisily. Their dry, loud breath accompanies everything. On the hard ground, their hoofs clatter. Their mooing comes from their guts. In the milking parlor, the whole system sounds with fast, uninterrupted «*chick, chick, chick, chick, ...*» The milk is flowing while the machines are pumping.

Taste

The still warm milk invades the mouth with roundness, and the fat envelopes the tongue and the palate. The whole sensation remains in the mouth for a long time surrounding the taste buds.



F41

In the Field with the Cows

Being in a field with a herd of cows. They graze on the grass. Their loud breathing gives a rhythm to their meal. Their tails sway from right to left. They walk slowly and enter into a grass dance.

At the beginning, I was in the park, rather far from the cows. They watched me from a distance but continued to eat the grass without much concern about my visit. At that moment I was fine, peaceful. The birds were singing. Bells were ringing. After a while, I approached them to take some pictures and also to observe their reaction to my presence. They all looked at me first. Some of them bellowed. Some came very close to smell me. During this approach I was calm but I didn't feel secure. Cows have a lot of strength. If they decide to push you, even if it's to play it can become dangerous. One of them was moving its head energetically towards me. I wondered if she was going to hit me with her head. But then I backed away gently. They followed me for a while, then continued to eat as soon as I was further away.

During the moment near the cows, I was only thinking about our relationship. I was focused on their movements and moved gently so as not to frighten or upset them. The cows in this pen were young, only one year old. The word heifer defines them. They are more active and responsive than the older cows that are already in lactation cycles.

I stayed in the pen for about an hour. It was important to take time to wait for their reactions. If I didn't approach them, the animals didn't care much about my presence. But entering their vital zone provoked curiosity and distrust towards the foreign entity. As they were at a distance, I had no apprehension, but up close we all remained very attentive to each other.

Milking Cows

Every morning and evening, the cows are brought in from the pasture to be milked. At the opening of the park, guided by the dog, they take the gravel paths of the fields to reach the building. As soon as they enter, the machine starts. The cows move into two rows of seven in the milking parlor. The farmer takes the first milk out by hand. That's two, three squirts. Then they clean the teats with disinfectant paper. For the milk, a pump is installed on the four teats. When the pump indicates the end of milking, the farmer checks the udder, removes the machine and disinfects the teats. As soon as the row of seven is finished, the cows are released into the free stall.

After milking, the cow goes to eat hay in the free stall. Once the gates to the field are open, the cow goes to eat her favorite food, grass. It happens that some cows start trotting or galloping once in the pasture. With a GoPro camera, we can follow the exit of the cow and moments in the pasture. When watching the video, we feel the heavy gait of the cattle. It happens that the cows push each other. Once in the pen, the movement of pulling the grass is in rotation with the tilting of the head.



F42



Dog

Mac, the dog of the Crausa farm, is a border collie trained for cattle breeding. He is a spectacular help in guiding the cattle. Always listening to his master, he executes orders and follows instructions. Mac comes to the humans who call him. He waits for pets and pushes with his head to receive them. He cohabits with cats and other animals with no problems.

Dogs are so smart. They get along well with humans. According to Foster, they have been bred for 50,000 years. Dogs are good at imitating behaviors, like 18-month-old children, and can collaborate and form relationships easily. They have a good memory capacity for some of them. «*One dog, Betsy, tested in a Hungarian laboratory, had a vocabulary of over three hundred words.*»⁵

According to Foster, with such abilities, dogs must have emotions. For example, in the Peak District National Park, a dog lay next to its deceased owner for fifteen weeks.⁶

In order to try to follow Mac and better imagine his movement, we installed a GoPro camera on his upper back. At first, it was not successful. Mac was a bit lost. He had never worn a harness, just a collar. We tried four times. The first time, I took him on a leash to see how he reacted to this new experience (00:00-00:15). The second time, he agreed to fetch the cows, but the camera tilted and slid to the side because he was running so fast (00:15-00:24). The third time, the master was not present. Mac did not follow instructions and squealed in response to the harness (00:24-00:47). The last time, we went to the calves. At this location, Mac had to move slowly, so as not to scare the little cows. So it was easier to follow his movement on camera. And this time he accepted the harness again (00:24-00:47). According to José, Mac's handler, it's just a matter of habit. Animals follow routine rituals.

Compared to human movement, Mac tends to move faster. He stays on the lookout and uses his head pivot a lot. He stays alert to his master's instructions. And he can run very fast. With the camera, we perceive the sensations of his movement.

These exploratory approaches with the cows, the dog or the human somehow link practice to theory. These research experiences with three farm actants involve direct interaction with these entities. This gives a sense of their role, habits, practices and opens the field to the attempt of empathy and understanding towards the more-than-human.



F42

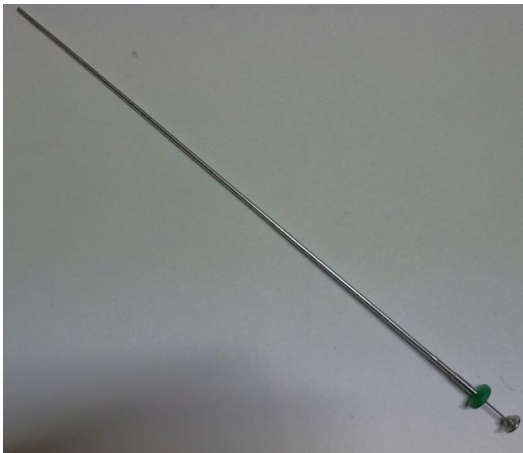


⁵ Foster and Piélat 2017, 190

⁶ Foster and Piélat 2017, 189-190

Objects Collection from the Crausa Farm

The vibrating entities of the farm are not only the animals. Objects and materials interact with other entities. For some machines, they give a new dimension to the human, allowing him to accomplish superior tasks in strength or volume. Others will serve as protection, food or tools and also enter into the interaction of this living materiality.



Insemination instrument.



Milk bar for calves.



Bells for calves.



Gloves for milking.



Disinfectant wipes.



Milk container.



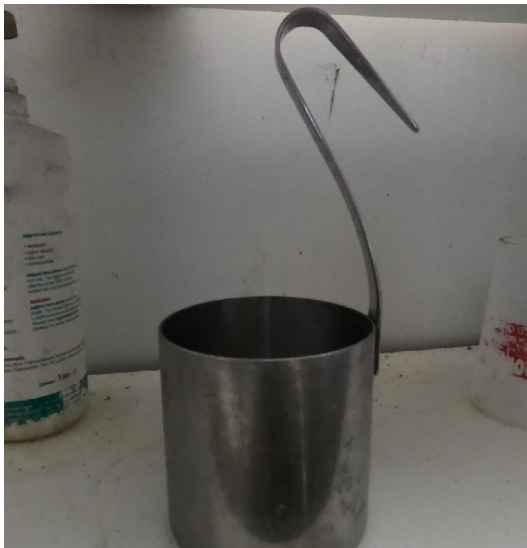
Apron for milking.



Nitrogen container with the sperm.



Disinfectant.



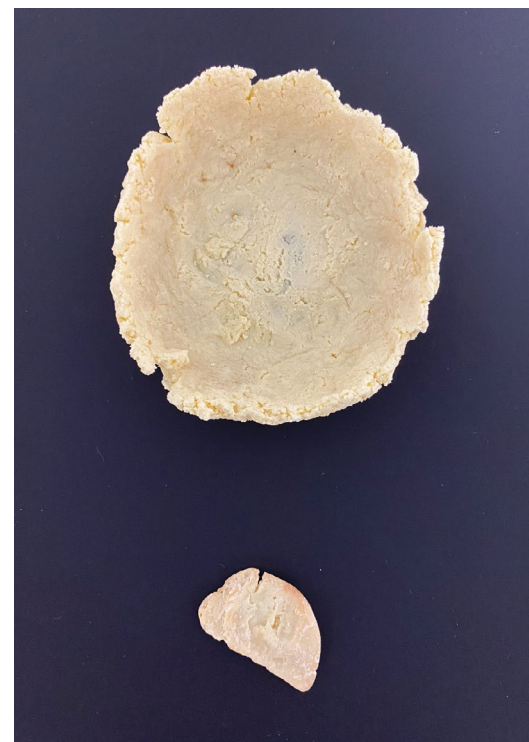
Milk metal cup.



Milking pump.



F44



F45

Milk Experiments

Milk Own Materiality

Milk, this creamy-white liquid with a thousand and one facets.

Cream and butter production (F44)

Milk can be transformed in many ways. In order to become more familiar with this product, I prepared cream and butter by hand.

As soon as the milk rests, a few hours are enough for the cream to settle on top. In order to have a large surface of cream, I bought a «*creamer*.» It is a container for three liters of fresh milk with a large diameter. Its very simple system blocks the cream and lets the milk flow.

The cream is the basis for making butter. This must be centrifuged. This process separates the lumps of fat and the whey (lactoserum). It is necessary to press well to evacuate the last residues of liquid. Then the butter is ready to be stored in the cold.

The milk remaining after the cream can be consumed. It is lighter. The whey that comes out of the cream has a sour taste. Some people drink it. It is rich in protein, vitamin B12 and other substances.⁷

I find it very interesting to make my own cream and butter. It is not difficult, and one knows where the milk comes from. After tasting the three elements, raw milk, cream and butter, I realize that the taste remains more marked and characterized in comparison with these same pasteurized ingredients that one finds in the commercial centers.

Galalithe⁸ (F45)

By heating the milk and adding a vinegar substance, it will curdle by chemical reaction in the living composition of the milk, as for the cheese base. This means that lumps are formed. This is the casein. This substance can be shaped. When it dries, the material hardens considerably. The process can be interesting for some objects related to this project.

Entering into direct physical interaction with the material offers a glimpse into the living possibilities of milk. The active white liquid reacts to chemicals and preservation processes. Milk is preserved by transformation such as cheese, for example. It is a fascinating material.

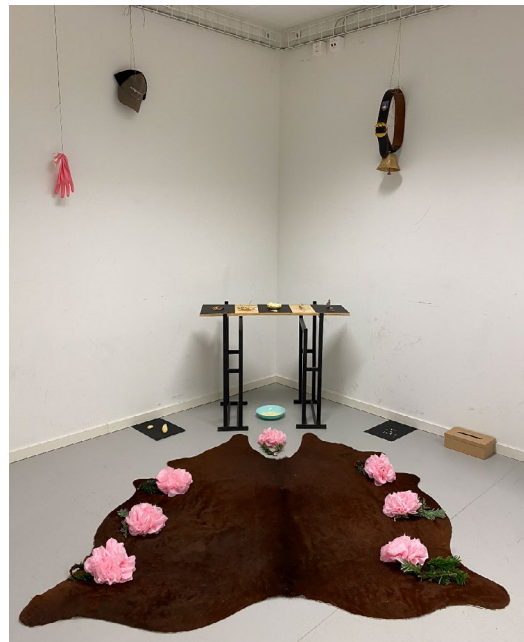
Milk Ritual Experiment

One aspect of the farm that inspires me is the multiple cycles of life and routine. The milk itself is based on the cow's reproductive cycle every year to obtain a calf. Other cycles are routines for humans like milking every day, inseminations, hay making, etc. They also follow the path of the seasons. From an inspiration of Anne Galloway's approach of ethnographic analysis, sometimes symbolic, this experience took shape. In an idea of celebration of the work of these living entities but also a certain criticism, the process led me to the experimentation of a speculative ritual of milk. The idea of this ceremonial altar installation was to pay homage to milk and its value while reconnecting with the farm and the cows in a slower time, in relation to the *Slow Food*.

A wooden platform supports objects made of galalith. These symbolize the milk. The hay and straw represent the bed and the food of the bovine. The cowhide is, of course, a reference to the animal. The paper flowers and fir tree are a link to the decorations put on the cows during the *Désalpe*. This underlines the celebration of the animal for what is taken from it. A plastic glove, dripping with cream and the cap make the link between the human work and the influence of the genetics. The bell acts as a mark of the past and a sound at the beginning and end of the ritual. A milking parlor sound emphasizes the moment of contemplation. A box smells the farm, inside a used halter.

During the ritual, participants sat in a semicircle. They were then given a wreath of flowers and an object to handle. The scent was passed on to everyone. Such a ritual offers a time of attention on this theme in a deep respect. In their feedback in the appendix, participants cited childhood trips, nostalgia and critical reflection on this production at the same time. This ceremony represents a celebration of work, of the animal, of milk, of life. The critical relationship with a human-manipulated bovine selection is still characterized by the cap. The second critical element, the glove, symbolizes the power of the human over the animal.

Such a ritual takes into account the human above all. The link with the living or the global process is not really put forth. Moreover, the whole thing remains somewhat vague and romantic. The concept of designing a «*spiritual*» ritual around milk stops at this experience. It's an approach that forces some connection to the theme, but does not encompass the true storytelling of milk today in its overall development. The experience remains mystical in a way, something I criticize in the chapter on milk's history. It lacks the layer of feeling of the human, the animals and this living, vibrating process from the earth to the milk. The experience was nevertheless important for this awareness.



F46



F46

All these observations and experiences allow me to create artifacts for my purpose, the increase of the value of milk and its process. The practical exploration, in such a context, is not negligible. Each experience has oriented the project towards its open end. The following chapter develops the outcome of this stage of the project.

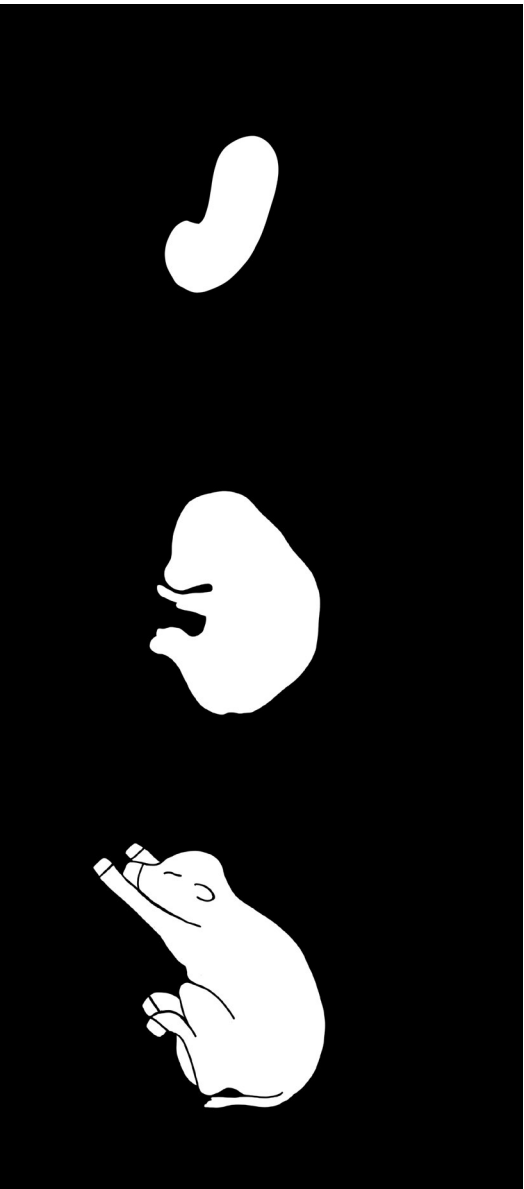
- The exploration of the farm allows direct contact and sensation.
- The approach and the observation of each entity helps me to weave the global narrative.
- The experiences with the cows and the dog open my vision of the other, I feel empathy.
- Photographic research of farm objects documents human tools and practices.
- The exploration of the milk materiality reinforces its vitality.
- The experience of the ritual allows the understanding that a deeper enhancement of the living entities should be achieved.

Practical Project

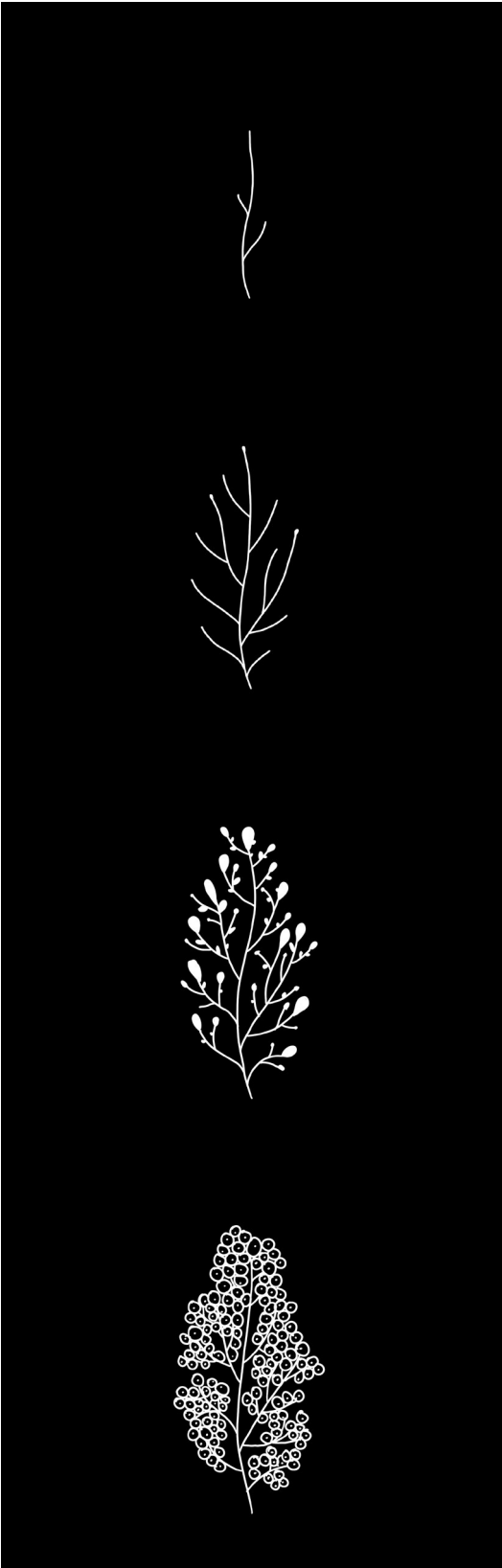


F47

The practical part of this thesis lies in the creation of a new way to experience milk. As seen in the theoretical part, bovine milk remains extremely anthropocentric until now. Cows are machines. The industry alienates the animal and the dairy farming. With this project, the aim is defined by the emphasis on the multispecies life effort of such a product. Theoretical and practical analysis through exploration or experimentation provides me with a solid knowledge base for the creation of the artifact and materials in a new form of exploration around milk described in this chapter.



Ideation & Prototyping



Visual Storytelling (F47)

How to put in animation the vibrancy of milk? To get into the practical direction of milk in multi-materiality, I made animations. They put the liquid in motion in an abstract 3D form. Two other animations show parts of the living history of milk. The fetal calf develops in the cow's belly from May to February. When the calf is born, the mammary gland produces milk. The 3D style brings a higher dimension. The full line drawing style brings a touch of simplicity that softens the complexity of the theme, in my opinion. These three animations show narratives that humans cannot see per se. The point to question with the animations is the abstraction and personal interpretation of the visuals and narratives.

Narrative Combination of Visuals and Texts (F48)

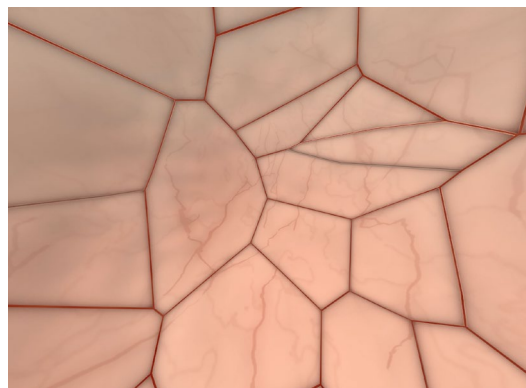
The way the story is told plays a very important role in conveying the overall image around milk. It's hard to get a sense of the whole narrative web. In this storytelling essay, it's a matter of getting familiar with the message tone. I developed animations by selecting entities active in the milk development at different levels. The visuals show a perception from the point of view of the calf, the spermatozoon, the cow, the grass, the earthworm and the human. Each story is accompanied by a text using the «I,» from the point of view of the entity. These include at the end of the sentence the word «repeat.» By this, the viewer understands the cyclical side. With the subjective point of view, the whole becomes enigmatic. For some viewers, it is difficult to understand the narrative. This in both styles tested, 3D or illustrated in textured 2D. At this point in the process, the purpose of these tests focuses on the idea of a website, a platform available everywhere online in global mapping of the living materiality of milk. The iteration leads me to think about the physical sensation that is not present with a website. On the farm, with living entities, the physical aspect is most important.





Milk/Cheese

A nice smell, the cutlery is on the table. A generous bottle of white wine overhangs the whole. A piece of fresh bread or a potato in hand, we taste. Melted to perfection, it warms the heart, unites the bodies. Repeat.



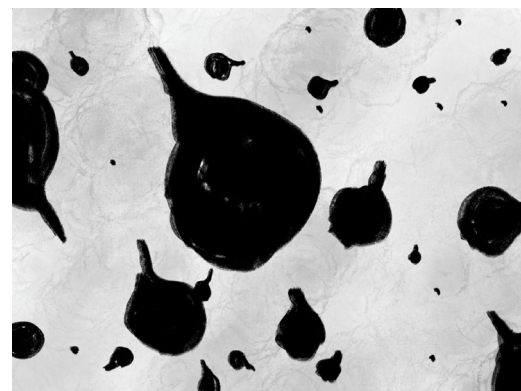
Calf/fetus

Sounds in the distance, warmth carries me. I grow. Inside her, I am well. I go out. Repeat.



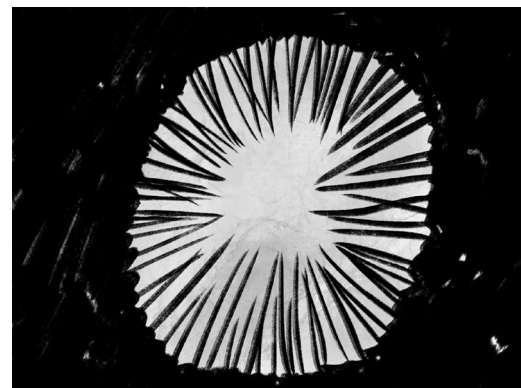
Cow

The ones beside the others, we wait. Lined up in a row, a spray surprises me. After a requested flow, the pump pumps me. Finally, relieved. Repeat.



Spermatozoon

In a circle, we swim. With one acceleration, we are free. Yet frozen. Repeat.



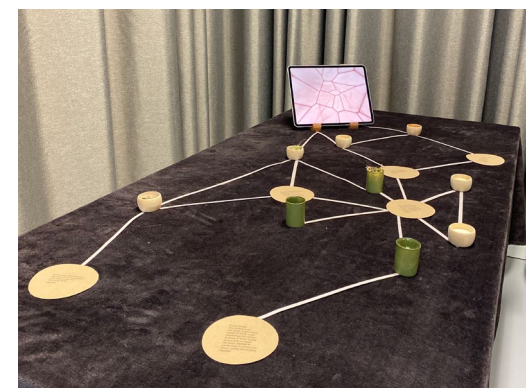
Earthworm

Immersed in the darkness, crawling like an accordion, I eat, digest and shit. The cycle of life. Repeat.

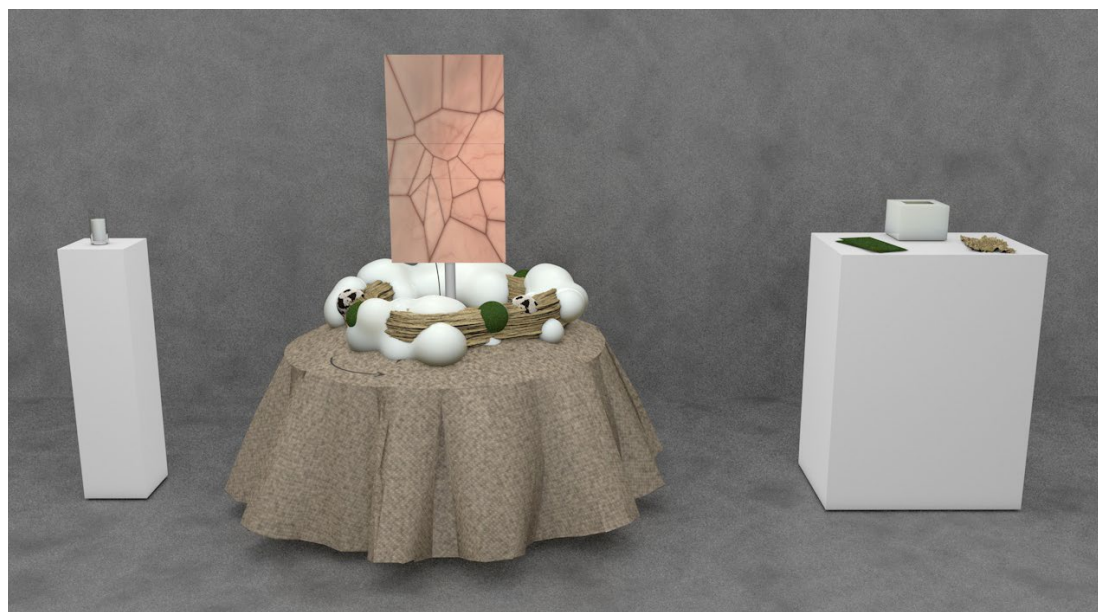
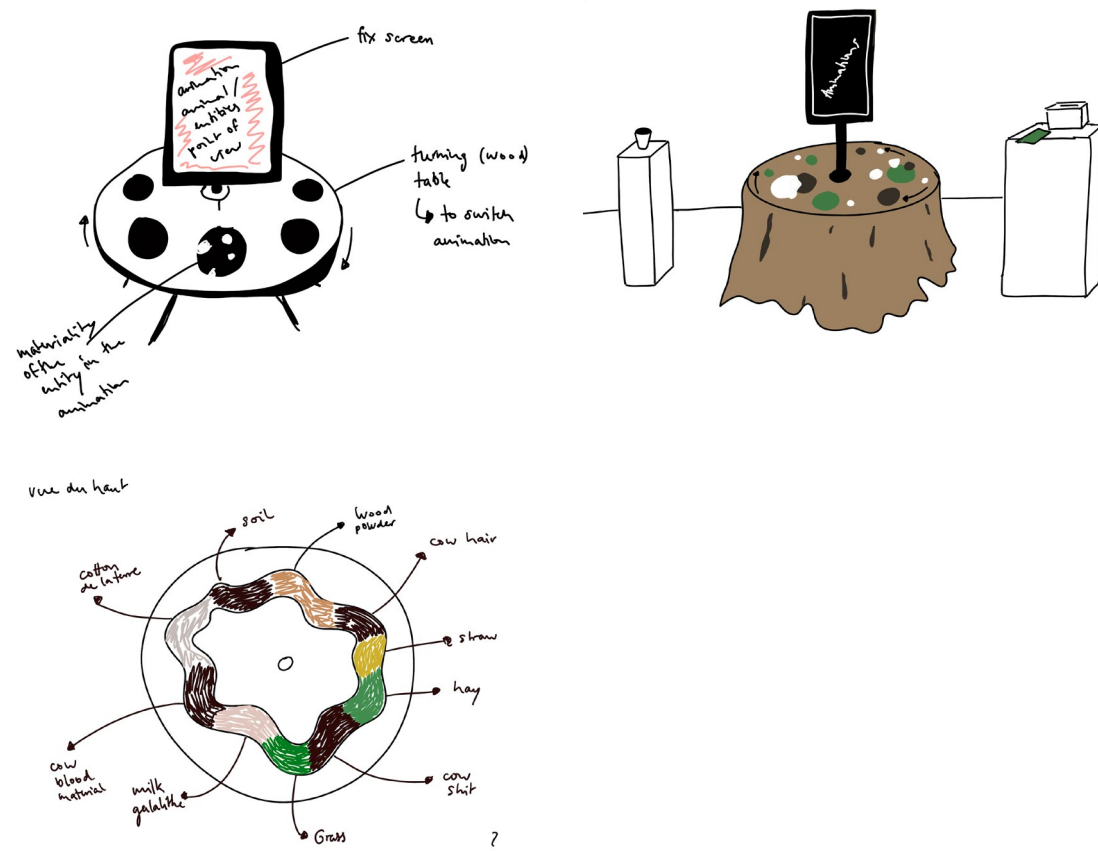


Grass

The wind caresses my tops. A thousand and one paws brush me. We are so much, one next to the other. The morning dew is flowing. It pushes me upwards. I am cut off. Repeat.



F48



Physical Artifact Ideation (F49)

The farm, the dairy story is full of tactile and sensory sensations. Materials, smells are omnipresent. This is why the solution of an installation can bring together these different aspects.

This fact leads me to the development of spatial installation ideas. The first one puts forward the cycle of matter in a rotating platform. The visitor's action of turning the base would trigger animations and sounds of different living entities. The central sculpture depicts the landscape of milk. However, after deepening the idea, this cyclical aspect, although very important, remains rather closed here. It does not depict the complete canvas, according to my interpretation.

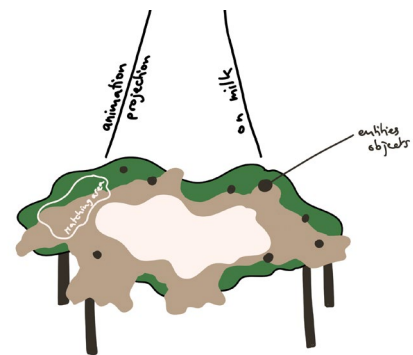
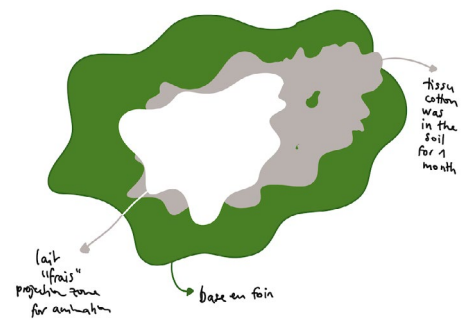
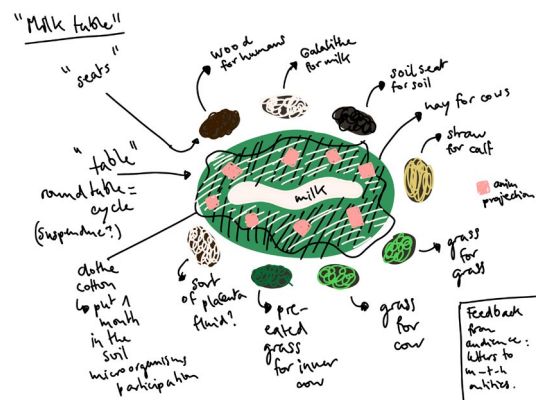
An open question remains, how to capture the feedback of the visitors? Why not let them write a letter or a word to one of the entities on manufactured natural papers (soil paper, hay paper for example)? Interviews about the experience and the feeling after the discovery of the installation are necessary.

Selected idea (F50)

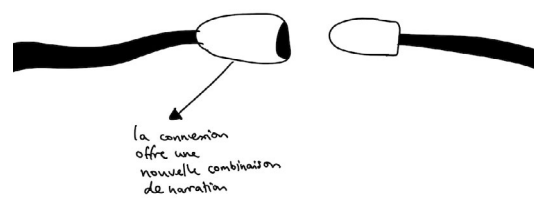
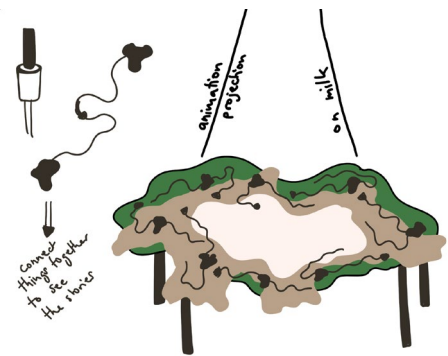
The sketch describes an installation following the concept of a table metaphor where each entity is represented in equal scale, in the same basic idea as *Superflux* mentioned earlier. In this version, the visitor can connect materials together present on the platform to discover the shared histories between chosen living entities. The connection can be imagined with cables or by moving the objects within a certain area. This requires a complex narrative with a large number of possibilities. As a video projection surface, a milk lake is exposed as a central element.

The hay platform is obtained by grinding and mixing with water and then drying in an oven. Taking inspiration from a scientific project of the Agroscope and the University of Zurich, I plan to use a fabric buried for two months as a «*tablecloth*.» The method employs cotton underwear to measure soil fertility. The cotton used in the installation shows the vitality of the soil.

Issue. Certain materialities do not necessarily have a direct link, such as semen and milk. Moreover, the connection of (rather abstract) objects can distract from a certain empathy for the living entity and seem gimmicky, in my opinion. These conclusions and discussions push me towards the development of an adapted version.

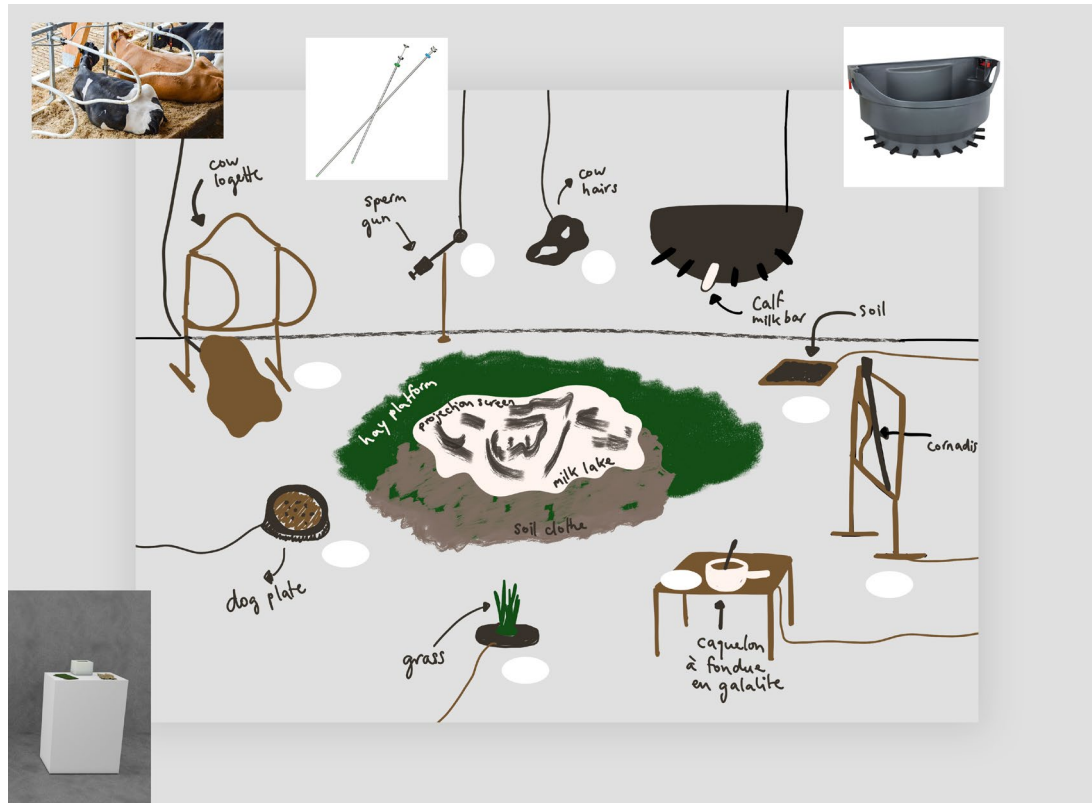


F50



F50





F51

Selected ideation iteration (F51)

As Foster describes, imagining yourself in the shoes of another entity heightens empathy. This is ultimately what I've been missing so far. Thinking back to the cows, the calves, I'm considering using some of the objects designed for animals as an element of storytelling activation by humans. In this version, a feed fence (a metal structure that in some cases blocks the cow's head) activates the story from the cow's point of view when the visitor puts his head in. One can also imagine a stall, for example, by lying down in the structure or a milk bar where pumping (manually) the teats like a calf, activates the narrative. Other objects are taken into account like the grass itself, an insemination gun, the cow's hair, the earth or a fondue pot, the dog's hatch.

In this stage, there is a dissonance between human-made objects for animals and more direct materialities like grass. In addition, there are many elements to activate. From this sketch, I simplify to clarify the narrative of the installation itself.

Prototyping (F52, F53, F54, F55, F56)

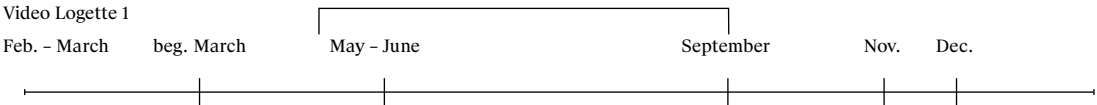
The simplified version contains four large objects, the feed fence, the stall, the milk bar and the grazing grass.

The full-scale iteration tests the video projection on the milk, which proves to work. The construction of the bamboo objects allows for the physical interaction necessary to activate the narratives. Each object activates video, sounds, and text played from the entity's perspective.

Inspired by the movie *Cow* described earlier, I film the cows and calves on the farm to integrate them into the installation. This moves me away from animation to a visual direction that I imagine to be more authentic. At this point, I use the texts of the second narrative experience. On the next pages, is a narrative diagram of the year in relation to the four objects as well as images from the videos.

One of the problems identified is the prominent emphasis on the cow by two objects, even three with the calf. Although she is the key to the creation of milk, a certain equality between the different entities makes sense in the more-than-human vision. Moreover, the installation becomes very large.

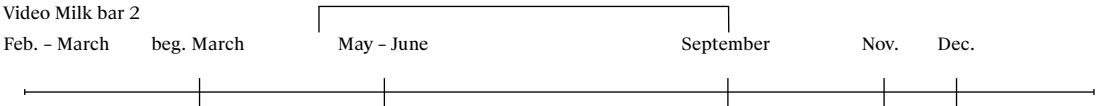
This life-size prototype generates feedback from the installation tester Dr. Phil. Meike Eckstein, observers, members of the Master Interaction Design and my mentors. It turns out that Eckstein imagines herself in the cow's place in the feed fence, for example. However, watching a video of the cow at the same time takes her out of empathy, she says. There is a contradiction between being in the cow's place physically and seeing it directly at the same time. Another point, according to her, is that the word «repeat» at the end of each text told is strong. It conveys the cycle, the routine. However, it was difficult for her to realize who was speaking. It was not clear. The auditory and visual narration is a full-fledged research and will be developed further.



calving, birth of the calf.
the calf is taken aside.
maximum milk production (cell).

close sound:
heartbeat?

narration by „*flash.*“ throughout:
the cow is lying inside.
the cow scratches itself.
fetal development.



the calves are together.
they drink the milk.

the calves grow (internal cells)
the calves go outside

calves become heifers.

narration by touch, throughout:
milk affects their bodies.

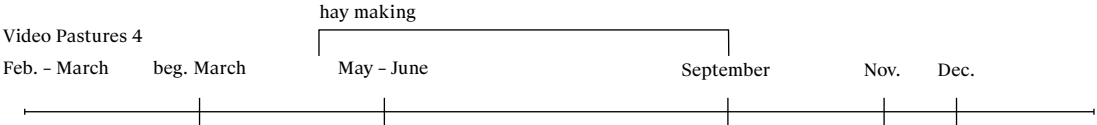


milking
dog drinks milk.

cow insemination
nitrogen, sequential, sperm, etc.
internal process

taring

narration by touch, throughout:
the cow is in the feed fence, she eats.



birth of
earthworms

the cow eats
the grass
they change
pastures

cow in heat

the cow ruminates
interior grass cow
the cow shits

grass growth ++

stop grass growth

the dog
leads the
cows

F54



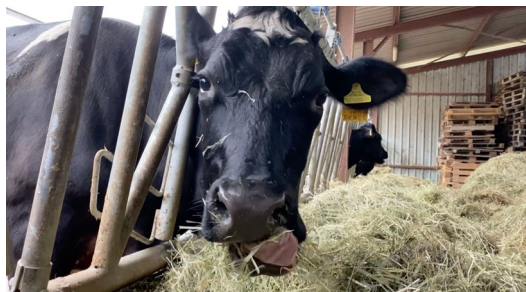
F53



F55



F56 Logette



F56 Cornadis



F56 Pasture



F56 Calf

Final Installation

Inspired by the methods of ethnographic, critical, emotional and speculative design, the overall concept of the practice extends to all designed media. It emphasizes the interconnectedness of the *actants* in the creation of milk. The equalization of entities from macro to micro, the imagination of taking the role of another entity and the highlighting of certain aspects subtly provoke. This leads to an awareness of the sacrifice, labor and importance of a product such as milk in order to increase its value and respect. The narrative follows the scheme of a spiral from the human to the micro entities through the animals.

Speculation is not, therefore, used as a vision of the future like some of the speculative projects of *Superflux* or Dunne and Raby mentioned earlier. It is used more as a generator of empathy through a change of perspective and/or highlighting a certain beauty or absurdity of the moment. The idea is to develop an alternative vision to understand the current world in a new way. Liam Young, speculative designer, writes «*We observe the world in order to re-present it back to us, not as a form of data visualization but as data dramatization.*»¹

The installation welcomes the visitor with a first assemblage of objects; a coat rack with a jacket and farmer's boots. On the jacket, smelling like the farm, an instruction is embroidered, «*Please, put your feet in.*» By inserting these feet into the boots, the visitor puts himself in the place of the farmer. This action allows him to listen to sounds and vocal narration from the farmer's point of view. The volume remains low for the objects around the platform in an intimate atmosphere. Following the path of the installation, surrounded by a wooden fence, the visitor arrives at the feed fence. An inscription marks the metal, «*Please, put your head in.*» The action again brings the reaction of sound and a vocal narration from the cow's perspective. The use of different voices helps differentiate the entities. Continuing, the visitor activates the milk bar by pumping with his hand to activate the story of the calf. (The texts can be found on the next page.) Because of the positioning of the installation under a staircase, the visitor has to bend down in order to reach the level of the grass, the ground and at the same time the «*very small*» for the human perception. The hay itself, milk, soil, the fabric of the earth and transparent silicon (sperm) can be activated with animations and sounds. The hay tells of the grass

and its path inside the cow. The soil bears witness of the vitality of the earth. The silicon represents the bovine spermatozoids, also bringing the storytelling of the development of the fetus. The milk represents its own essence and performance as a living matter as well as its creation in the cow's mammary. The affordances on the platform are highlighted by zones that call for action. For each narrative activation, a visitor must continuously give his «*energy*» its vital force to keep the sounds and videos on play mode. If he stops, it will end.

The reality on the farm is meant to be captured in a certain way in the exposure of the real context. The animations, the interview or poetry give a more or less imaginary vision that the spectator builds. In the idea of a future website that tells the overall story, I made a video report following the same narrative as the installation described in the next paragraph. The film starts with the human, zooms into the living stories of the other entities and ends on the milk itself. Such a digital medium allows an ethnographic contextualization of the installation in a real research. Passing through aerial overviews, getting closer and closer to the small to our human eyes, the video ends on microscopic shots. They feature the earth. The defecation of cows and the milk are vibrating. The film, like the installation, challenge proportions and different living worlds. In the idea of the future website, it will accompany the installation and will serve as documentation at the same time. Following the zooming spiral, the interactive platform will offer an entry into the milk for navigation between the living entities through the discovery of sounds and videos as well as animations. Such an assembly reinforces the understanding. Moreover, it is accessible almost everywhere without having to move to see a physical artifact. The website is to come in a second phase. The video reportage of the growing focus on the more than human is used for this stage of the project.

On the installation, the visitor experiences the farmer's feeling by the audible interview drawn from the words of Lucien Eggertswyler in the appendix. The farmer brings his vision of the job, his link with the cows and the grass. This text is also used as a voice-over in the video. The writing for the cow and the calf follow a poetic logic of repetition.

Inspired not only by Foster but also by experience on the farm, I describe their behavior and what happens to them during the year in the first person. Using the «*I*» according to Rasa Weber, designer and lecturer during an audio-visual storytelling class, provokes a higher connection with the protagonist.² Each text ends with the word «*repeat*.» This emphasizes the annual and daily repetition of specific rituals in order to have milk, precisely the milking, the insemination, the birth of the calf, the feeding, etc. Everything is repeated continuously. The animations preceding the audio material illustrate micro-processes to the human eye. For example, in the case of sperm, the cell is formed, the spermatozoon comes out. They are many, they sail. They come out, get frozen. Thawed, they are injected. The race leads a spermatozoon to pierce the ovocyte. The fetus develops. The narrative scheme is repeated for the grass, the earth and the milk itself. All stories, textual or visual, are accompanied by sounds from the farm. Some of the non-producible sounds are created to highlight the micro entities.

The results of this study stage the milk, the dairy farm and the manufacturing process in a spatial and digital experience mixing living matter and audio-visual material. The olfactory, sensory experience of the materials links the installation to the context of the farm. The stories told provide a sentimental auditory and visual narrative. Immersion in the place of the other allows for increased connection. The experience offers a heightened importance to the process and entities present in the creation of the milk in order to enhance its value and will hopefully create empathy with an emotional design. Feedback from the visitors and photographs of the final installation will be found in the appendix.

- Artifacts concept emphasizes the story from macro to micro.
- The installation allows a multi-sensory experience through vision, hearing, touch and smell.
- The narratives are based on theoretical and practical/ethnographic research.
- Designed results aim to generate empathy and increase milk value.

Farmer¹

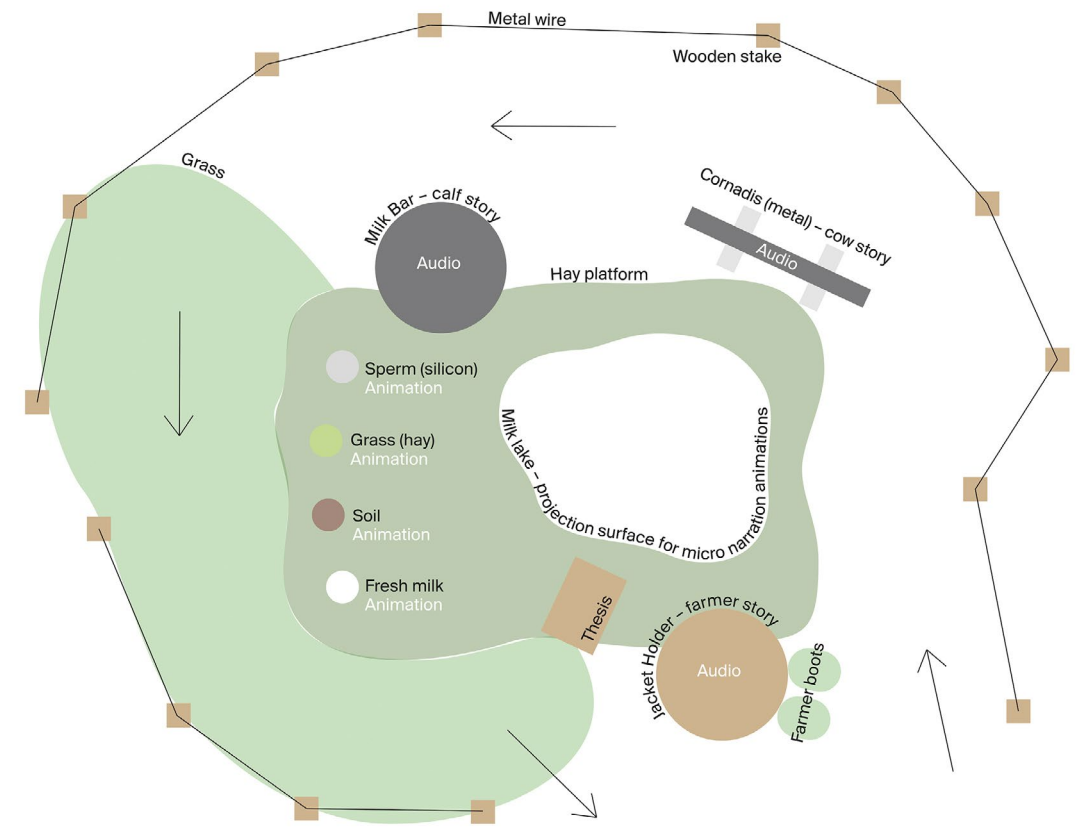
I enjoy being a farmer. I love animals. The cows give back what you give them. We start at 5:30 a.m. and finish at 6:00 p.m. I don't see the days pass. First, it's night. You are alone. You have your animals. There is not a light, not a sound. It's quiet. [...] In the meadow, I could watch the cows eating for hours. It's so peaceful. That's where they belong. You know they're good out there. It's a symbiosis. A cow, she shows you when she's hungry, when she's in pain or when she has a problem. [...] When you go out to mow, it's nice, you have the smell of fresh grass. The milk is the result of all the work we did before. You have produced food. It is not just anything. It's the main goal of the farmer. [...] One of the highlights of the day is to enter the milking room. It's very satisfying to see the product of your work. And you have all the cows walking by. You see them. You're with them. [...] They have this ability to turn grass into food. It's amazing. It's a cycle. Repeat.

Cow²

Contractions. I'm trampling in the stall. A small being comes out of me. One moment later, it disappears. I moo. I am thirsty. I drink. I am hungry. I eat. I lie down, ruminating. I sleep. A smell wakes me up. Fresh grass. After the cold, the warm weather. It is the race in the field. Clump of grass, I tear it off. Clump of grass, I tear it off. I swallow I chew. My hoofs sink slightly in the soil. One behind the other, we swing. The udder is swollen and tight. I wait. I move forward. I ruminate. Oh. Pump, pump, pump. Relieved. I walk. Locked in, I eat. I warm up. Pregnant. I am hungry. I eat. I go out. I eat. The cold comes. We stay in the warmth. Repeat.

Calf³

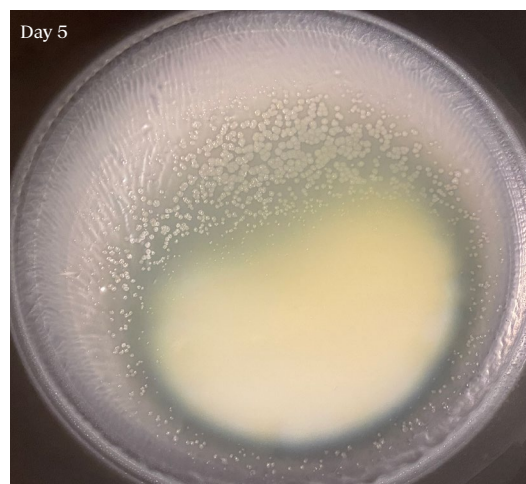
Warm inside, I hear sounds in the distance. I go out abruptly. My nose is full. I breathe. I sleep. It stings, I shake my ears. I wait. I run, jump against the others. I can hardly stand on my feet. The smell of milk. Hungry. I drink, close my eyes. My tail goes in all directions. Done. I moo. I suck an ear. I push the others. I wait. I nibble on a piece of straw. We lie down together. I sleep. We go out. The wire shocks me. I taste the grass. We're going inside. I suck, close my eyes. The warm milk fills me. I moo. I grow fast. The bells ring. Repeat.



F57 Final installation plan

The following pages show the process in more detail in pictures.

1 Inspired by the Lucien Eggertswyler interview in the appendix.
 2 Personal poetic text
 3 Personal poetic text



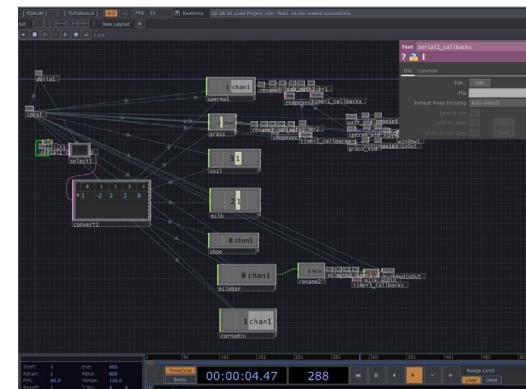
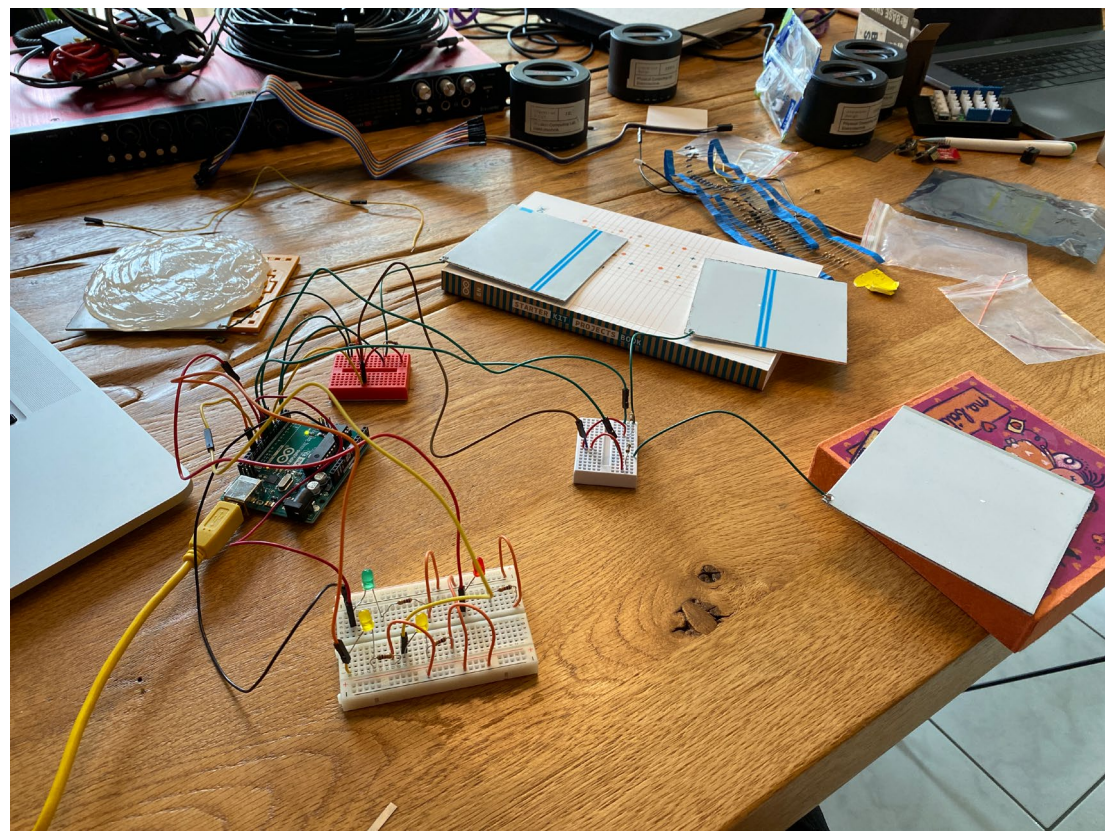
F58 Real milk is used in the installation. This allows it to live for this period. Living matter reacts to time.

F59 As described in the chapter, I buried a cotton in the ground to see the effect of soil activity for 2 months.

F60 After I removed the four-place headliner, my father, a body builder, welded the pieces together.

F61 As the milk lake has to be milk proof, I made it out of metal. The QR code shows you a video of the metal process.

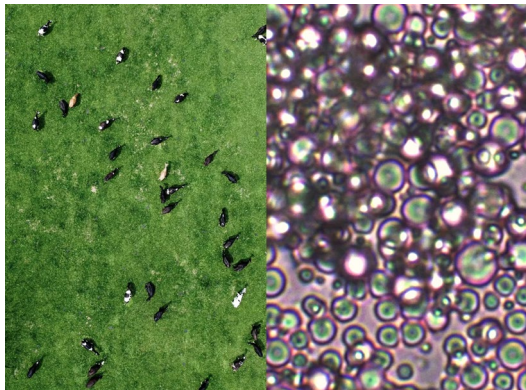




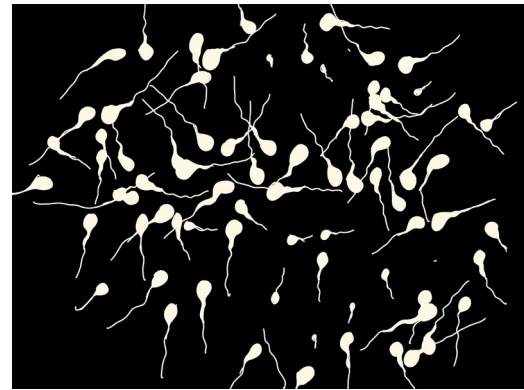
The technique behind the installation is characterized by the use of sensors, buttons, an *arduino* and many cables. In order for the animations to be activated by touch, I use distance and capacitive sensor technology. With almost any piece of metal, one can create a sensor.

The home-made capacitive sensors are relatively fluctuating and sensitive. The real simulation has shown this.

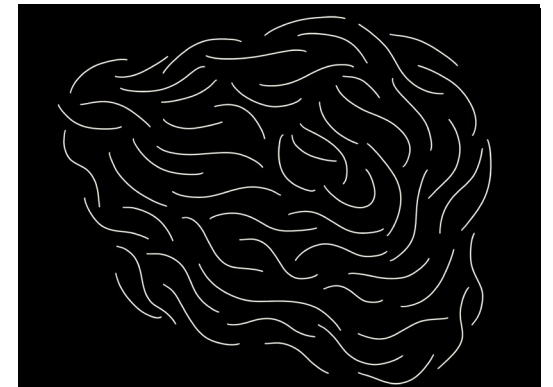
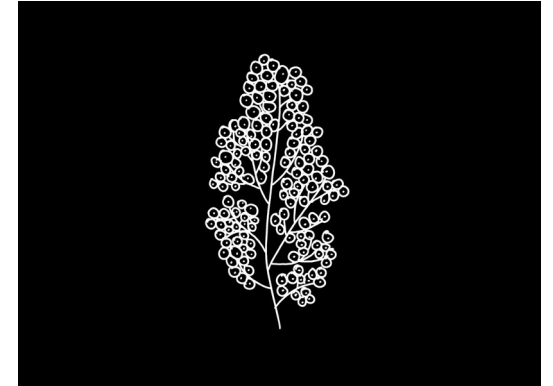
The TouchDesigner software allows the transcription of data to the computer for the activation of audio-visual media.



The shots of the video report defy scales of size. The human remains in the background while the living world around the production is at the center of the narrative. The sounds are sometimes very close, like the cow's breathing for example, sometimes more ambient.



The animations depict smaller or invisible processes to the naked eye. The very simplified 2D style in black and white is meant to be readable and without too much effect in the idea of authenticity in the interpretation.



Discussion & Reflection

General Conclusion

This thesis explores the interconnection of the human and the more-than-human in the creation of an animal product: milk. It develops the implementation of an emotional design around the liquid. Inspired by New Materialism, more-than-human design and emotional design, the project fits into a category of conscious design. It forces the construction of an interactive narrative web around a specific example of food. It is developed with the aim of (re)valuing. The purpose allows guidance in a process, exposing the animated effort, offering a new perspective.

The milk history in Fribourg, as in other geographical areas, is rooted in gastronomic and folkloric traditions. Through state propaganda and rituals, milk mythically became a source of strength and pride. At first, closer to the rural environment, consumers move away from the primary sector due to economic development and advertising alienating the cow, for example. Fewer people are leaning towards the land-based professions. The wide gap that is still slowly widening forces a reconnection to the origin of food, in the case of this thesis, milk, with the aim of respect.

Living connections govern the production of milk. From humans to cells, microorganisms and animals, each cycle requires vital efforts. Our anthropocentric western society finally gives little importance to the animal and material forces of such a process. In advertising, in the store, the human, the cow are certainly highlighted, the bovine more as a mascot object than a real living being. The grass supports the cow, not as a living entity. The other living beings of the process rarely appear. The distancing leads to the disregard of the vibrant interconnectedness and origin of the product, in some cases. By taking into account the liveliness of the different worlds that intertwine in the process of acquiring milk, this thesis gives space to entities and narratives that are set aside by the Anthropocene.

The ethnographic approach provides an invigorating field research. One learns through observation and active practice in a world one does not necessarily know. The idea of a designer stepping out of

his office and putting his boots in the mud opens doors. This feeling is essential in the creation of appropriate concepts in order to weave the web of context.

The final design is inspired by theory and exploration on the farm throughout the year, highlighting key points in the story. Each world at different levels of size is represented with balanced importance. The physical part of the installation allows for a narrative connection through the stories told, sounded and visualized. The sensory aspect of the materials used reflects the tactile connection to the context of the farm emphasizing the immersion in the stories. As Foster cited in the more-than-human chapter writes, empathy is enhanced by taking the point of view of another living being. The use of «*I*» in the narrative and the shift in perspective, imaginary and physical, follows this logic. The measurement of visitor feedback is found in the appendix after the final exhibition. However, theoretically and through feedback from previous prototypes, the conditions of the artifact and storytelling push the human himself in the place of the other, provoking a certain empathy and awareness. The interactive installation and digital documentation provide visitors with not only an informative overview but also an emotional insight into life beyond the human. By combining all the stories together, the final design allows a vulgarization of a complex process. The result allows a new vision on a theme with an adjustment of interdisciplinary methods. Taking into account all these complex processes restores its value. In this project, milk is no longer just milk. It becomes a living whole, full of connections and impacts, challenging the individualistic vision of the Anthropocene.

Personal Conclusion

As a designer, I have the ambition to follow this slower process in sustainability in creation. The exploration of these vibrant stories has guided me on a path that I did not necessarily imagine myself on. Until today, although sensitive to other animal entities, I was focused on the human. This work has given me an open-mindedness that expands the boundaries of the living. Design is meant to be human. But we also affect Nature. The least we can do is to take into account the more-than-human, to

be aware of our choices and impacts as a designer, human, by conveying a place for the living. As Koechlin testifies, quoted in the more-than-human subchapter, I am also beginning to see and imagine the material interconnectedness of, what I would call the «*www – vibrant wild web*» that governs our world. In which the human as an individual loses its predominant place.

Future Developments

Although in design the methodology of work is not 100% reproducible as mentioned in the introduction, we feel a red thread adapted for this thesis. This method is characterized by the consideration of the more-than-human actors in the creation of an object/product/food/material intended for human consumption. With any brief, one could weave the vibrant web from the macro to the micro, understand the connections, the symbiosis and design accordingly. Let's imagine that now, in the continuity of milk, I design a farm store. I can use the knowledge generated to be in adequacy with the product in the concept of *Slow Food* or even slow design. I could adapt the created installation to a physical or online store offering an awareness in the consumption. I hypothesize that this way of doing things is finally adaptable to any product in a conscious design use as described for example by Will and Kar¹.

By creating an installation with an interactive staging of the stories of other living entities, the experience by definition creates emotional connections between the visitor and the narratives presented. The installation could be exported to places of consumption such as big stores for example bringing a connection to the origin. However, theoretical and practical research on immersion methods could be developed for improvement of the installation based on already tested concepts. Design for the more-than-human is a path that could also be taken. By imagining solutions to improve the biodiversity in the pasture land for example or a reflection around the detention of animals for human consumption. This milk project remains in a certain human focus although open to the more-than-human. However, it questions the place of the human in our society.

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F51 Sketch by Mona Baiutti, 2022, ZHDK, Zurich.

F52 Diagram by Mona Baiutti, 2022, ZHDK, Zurich.

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F63 Photographs by Karmen Franinovic, 2022, ZHDK, Zurich.

Appendixes

Andréa Eggertswyler

Handwritten, 02.09.22, Crausa Farm,
Bois-d'Amont, Fribourg, Suisse

Andréa Eggertswyler is a peasant, daughter, wife and mother of peasants. She has lived on the Crausa farm in Épendes (Bois-d'Amont) all her life. The farm has been in her family since 1860 and Andréa has played an important role in its development.

My name is Andrea, I am the grandmother. I am 83 years old. I live on the ground floor of the house on the Crausa farm, I was born here in 1938.

My childhood on the farm was happy although I felt a lack of brothers and sisters, as I am an only child. I went to primary school in Épendes, a 30-minute walk away, four times a day. I was a good student. When I came home from school, I helped a lot with the housework. Then I went to secondary school in Fribourg and to the home economics school in Kriens to learn German. Finally, I took a year's course at the agricultural school in Marly.

The farm had been in my family since 1860. My great-grandparents came from the canton of Aargau. So today, this is the fifth generation of my family on this farm. There have always been expansions. Everyone worked hard, manually, like everywhere else in those days, and we were very thrifty. Horses used to replace tractors in our house until about 1955. With my parents, we had about ten cows, cereal crops and potatoes. We had a large garden with many plantations as well as an orchard and small fruits. All this was sold by delivery and a smaller part directly on the farm. We processed the fruit from the orchard and the vegetables into jam, «vin cuit,»¹ preserves, alcohol, apple juice. We made butter. And with the meat, everything was for our own consumption.

In those days, we didn't have a fridge, but we had other solutions. Meat was salted or we prepared canned stews for preservation. It was quick to make dinner afterwards. In the 1960s, sick cows were shared among the farmers in the village. This meat sometimes smelled a bit. It was

bleached with vinegar. Today, this is forbidden. We had a smoking room in the attic; we smoked pigs and sometimes beef.

We also sold seedlings. Then the shops sold them with soil around them and well presented. We had to change and try other things. Deliveries of berries were also stopped. The main restaurant where I used to bring them decided one day to go for frozen raspberries imported from Poland. It was a shame but we had to move on again.

After I married a farmer, we continued to expand. We bought and rented land, built a stable for twenty-two cows, a fattening house for five thousand chickens. I was involved in these changes for over twenty years. We fattened calves and pigs. We also renovated the flats, the kitchen, the slurry pits and many other things.

The installation for one thousand laying hens for ten years allowed us to sell half of the eggs to an organization and the other half directly by delivery. After one year of laying, half of the animals were sold life for a second cycle of egg production. The rest were killed, sold for meat. We also kept some for ourselves in the freezer. At that time I was in charge of collecting the eggs and checking the feed. I was also responsible for direct sales.

I worked with the tractor and the haymaking machines. This was for unloading the hay with the blower, and unloading the straw onto the joist. At that time the tractors were smaller. That was easier than it is now, I think. And for the big cattle, I used to help out whenever I was asked. With the cow-to-grazing system, we reduced the crops to leave the grass for the cattle.

I looked after my parents until they died. This was more common in those days. My mother was in a wheelchair for two and a half years. She didn't accept her condition. It was not easy.

The exterior of the farm was important to me. On each window, I put containers with geraniums. I also maintained the bank near the house with lots of plants and flowers. Watering all this took a lot of time. You had to go to every window! As time goes by, the workload decreases... But until the age of 75, I continued to look after the gar-

den. I loved gardening. My plants were well cared for. But after a while, I couldn't do it anymore. It was getting too hard and the dampness of the soil didn't suit me anymore.

I always helped my husband with the administration. We made payments, filled in documents together. All this in addition to cleaning, cooking, laundry and maintenance of the house and surroundings for six people. One good thing we did was to create a small flat in the house. This has been rented since 1986 and contributes to my retirement.

All along, I was immersed in it. I always enjoyed life on the farm and felt good. I liked all the work, even though it was hard work. It is very varied! Life on the farm is healthy and close to Nature and animals. The whole family is in the same place, you are close to the children. It was a privilege.

There are constant changes in all sectors. You always have to adapt. Direct selling is a very good thing. I think it's the future. We have a good situation with the road crossing for it. It's extra work, but consumers appreciate local, fresh and varied products. Today's agriculture has made and will continue to make efforts to be appreciated by Swiss society. It works hard to provide quantity and quality in order to reduce massive imports from abroad.

To conclude, I have had a good, full life. I have enjoyed good health. I have only one regret. It is that I lost my husband at the age of 69. He also deserved a good retirement. We were very pleased when our son, José, took over the farm and continues to improve and modernize. I am pleased to see the farm continuing in the right direction, always evolving. I think I am from the generation that has seen the most changes.



Photographs from the archives of Andrea Eggertswyler.

Ritual

Participants Feedback

Léa Ermuth

When I was growing up in the countryside in Basel-Land, I had friends and classmates who lived on a farm. When I would spend an afternoon playing with them, we would always look at the animals (mostly cows). I remember being fascinated by them. I wanted to pet them, but I was also afraid that they would bite or attack me. I also remember a day at school when one of my friends brought fresh milk to class. Each pupil was allowed a sip, and I remember thinking, «What is this?» It tasted warm, very greasy and like grass. I must have been 7 or 8 years old, but I remember it like it was yesterday. As I got older, I had fewer and fewer friends who lived on farms, and when I left my parents' house, I moved to the city. The ritual of the cow brought me back to the time when I played on my friends' farms as a child. The intense smell in particular triggered a nostalgic feeling in me, a feeling of lightheartedness, exploration and fascination for life on the farm. This strong feeling of nostalgia was strange for me, because now that I am older, I see the farm differently. I understand it more as a place of production where the animals are somehow between the animal and the machine. I find the romanticization of farm life on animal product packaging hypocritical and avoid consuming animal products as much as possible. At the same time, I have understanding and respect for farmers and their work. I know that they are also part of a system, and even if I don't consume animal products, I am part of the same system. I also eat many non-animal products that are also produced on a farm where animals probably live. The farm experience at school was something between these two feelings, between nostalgia and reality or between romance and reality. It made me question my own position as an outsider and consumer and made me aware of the ambiguity I feel about the farm.

Hanh-Dung Nguyen

Because I grew up in Switzerland and regularly hiked in the countryside with school, the ambient sound of the cowbells and nature really put me in the mood right away. The sound really had a strong immersive effect on me. It really felt like a ritual because we were all sitting pretty close to each other on the floor in a decorated corner of the room. To be honest I wasn't analyzing the meaning of the objects around me during the

experiment but rather just observing everything and the others. Listening to the instructions and being open to the experience. Because I talked to Mona before, I already knew most objects presented were made of milk and vinegar. But it was still surprising to touch them. Because they look so fragile but are actually really solid. And because of the texture and color, they are really interesting to look at. It was nice to involve 4 senses (hearing, touching, smelling, looking) to be immersed in the theme. But it was only after the experiment, when we all talked and gave feedback that I started to really reflect about what the message or the meaning of the project could be. For example, someone mentioned that there is a hat "Swiss genetics" hanging above everything and wasn't sure of what it meant. (For example, is it higher than the rest because it's important? Or is it just there because it is now normal that this is part of the farming experience) I had no idea about it and maybe could've used more explanation into the ritual itself. Like some sort of introduction. Or not if it's not the idea, it should maybe be up to me to do more research if I want to know more and then build my own opinion about the subject after the ritual. It depends on what matters the most for the artist.

Romina Moser

I found the milk ritual with Mona to be a very valuable experience. Especially that we all sat in a circle made it even more of a collective process. Personally, the ritual brought me back to my childhood. The smell of the farm combined with the ornaments and the sounds of the cows, reminded me of village life, tradition and family. Feeling the artifacts produced from milk gave me a new perspective on the whole concept of milk production.

Lucien Eggertswyler

Sound recording, 02.09.22, Crausa Farm,
Bois-d'Amont, Fribourg, Suisse

I enjoy being a farmer. It's always been a given. I always wanted to do that. When we were little with my brother, we used to go to almost all the time, whenever we had vacations, to help my grandfather. He had 5-6 cows, a small farm. He also always showed us the good side, the nice work. We always liked going there. I really liked doing that. Working with animals, with nature, with the seasons. It's varied. There's always something else. Once it's the animals. Once it's the fields. Once it's the machines. Once it's renovation. Once it's crops instead. That's what attracted me.

Most of the time, we sat next to my grandpa on the tractor. If not, when he was working, we cleaned the barn a bit. We walked around the barn. We were small, we didn't do much. Afterwards, I was 13, 14 years old. He taught me how to milk. And I used to go and milk sometimes at his place, mostly to please myself. It was really important to me to know how to milk before I started the apprenticeship and before I went to work at Philip's. That's why I went to ask him and he taught me how to milk.

One thing is for sure, I love animals. That's for sure. It's very interesting to work with animals, especially cows, but also young cattle. They give you back what you give them. I think so. There is an emotional side. That's why we love them. After that, it's clear that there is also an economic side. They allow us to earn a living. It's very satisfying to milk and then to see the milk coming out of the cow, going into the tank. This milk is the result of all the work we did before.

In relation to the animals, I don't have the same relationship with a cow as with a chicken, for example. That's also quite normal, I think. I have more feeling for a cow. The chicken, I respect it. But you have less feeling. You don't have the same relationship.

I respect the cow as a living thing. We do everything we can to make her feel good, as good as possible. We are also not comfortable or good when a cow is suffering or when there is a problem. We don't like it. My relationship with the calves is the same. The calves don't have milk, but it's very satisfying to see them grow. They grow very fast.

It's clear when there's a cow that's 10 years old, you like her. And it always hurts when she leaves. But it's also always annoying when there's a young one that has to go. Because you feel like you couldn't develop her or raise her to the end. And there's always that economic aspect to it. Étoile wasn't carrying. And we sold it. That's a shame. She was one of my favorite cows. That's for sure. It's annoying, but that's the job.

The first few times you give the calf a bottle, it's a bit of a feeling. Afterwards, you get used to it. It's part of the job. The first time you give a calf a bottle, you are very happy. But I don't feel like the calf's mother at all. It's not that relationship at all. The female calves, we keep them. They become a pride. The male calves leave. I think it's really nice to know that they're going to a neighbor's farm to be fattened up. I think it makes a lot of sense. It shortens the circuit. I'd rather they go to the next village to be fattened up than to the far end of the Swiss-German border. Where we don't know where they go. Here, we know where they are. We know how they work.

The biggest heartbreak, like this year, we had too many cows. We had to sell nine. We had to choose nine. But they are all pretty these cows. We also sold them to a colleague who doesn't live very far. But it's always hard to sell cows. We know that it would give good cows.

A cow shows when she is hungry. She shows when she is thirsty. When she's in pain or has a problem, she shows it. She limps or yelps. Suddenly, she runs. They also pushed me to be caressed. They come with their heads. They push us, but in fact they scratch themselves on us. They don't realize how strong they are. Like calves, they come to be caressed, but they scratch their heads on you. The cow is curious. She comes to watch what's going on.

We have calm cows because we are calm with them. If you're nervous, they sense it right away. And they get nervous too. Whereas if you take good care of them, you feed them well. They're healthy and everything is fine.

I love milk and cheese! When it's our milk, I feel like it's so much better than when it's milk that we buy from somewhere else. I feel like it's a bit of a magic potion, that gives you strength. It's healthy. You don't get sick when you drink milk.

No two days are alike. But in the daily routine, we get up in the morning. We get the cows from the yard. We milk them. Then we take them out. Then we go to lunch. We finish a bit in the stable. We clean everything. Afterwards, until noon, we work in the fields and in the buildings. In the afternoon we also start with this kind of work. At about 4 p.m., we go to drink a coffee and then we bring the cows in. We milk them again. We take them out and we are done. It's always a very full day. We start at 5:30 a.m. and finish at 6 p.m. You don't see the days pass. That's remarkable. When you get home, you're tired. And you are hungry too! You also often feel that you have done something good, produced something. You have produced food. This is not just anything. This is the first goal of the farmer. Good quality food that makes you feel good.

With this milk that we produce in the pasture, it's high quality milk, with the omega and all that. There is a little extra. It's fatty. You can smell it. It's nice to be able to drink what you've produced. If a cow has mastitis or breaches, the milk loses quality. It makes like lumps in the milk. If a cow is sick, she gives less or no milk. But usually we treat her before it gets to that point.

In the morning, I know that I am expected by 55 cows. You have no choice. They count on you. It's hard to get up, but I never mind going to the farm. I think getting out of bed is hard for everyone. In the morning, there are not many people, not even anyone on the weekend or Sunday. You feel like you're a little privileged. First of all, it's dark. You are alone. You have your animals. There is not a light, not a sound. Then there is the sunrise. You really have the impression of being a bit privileged. It's quiet. There is no one around. You are alone.

One of the highlights of the day is going into the milking parlor. It's very satisfying to see the product of your work. And you have all the cows walking by. You see them. You have control. You're with them. You see that everything is going well. But everything we do, all year long, is for that. When you're alone milking, you're in your thoughts. Sometimes you think about something else entirely. I like milking. You are with your animals. You collect your milk. You are well.

When inseminating, you have to be calm, don't make any sudden movements. You can hurt the cow. You have to go slowly. There are frozen straws that are thawed. They are in liquid nitrogen, with the semen. And we're going to put it in the cow.

Mac, the dog picks up the cows. He loads them into the cattle trucks. He brings them to us left and right. Otherwise he's always with us a little bit. He's always on our feet, always looking to be petted. He is the best employee. He is already seven years old. He's like a buddy. He is always there. He's a nice dog.

There is not directly the cheese of the farm. It's the cheese from the dairy with all the milk mixed in, but it's clearly the best cheese by far (laughs). There's no doubt about it. It's still a source of pride, this Gruyère and Vacherin that we have at home. And it is very objectively the best cheese in the world (sarcasm). No, but we are lucky to have these products here. They're pretty incredible both in taste and quality.

In the meadow, I could watch the cows eating for hours. It's so peaceful. That's where they belong. When they come out, it's a pleasure. You know they're good out there. It's a symbiosis. Cows eating grass, that's nature. And also economically it's where we make money. They have this ability to turn grass into food. It's amazing. All we do is take the cows to the grass. We're trying to get them the best grass possible so they can produce as much as possible.

Soil is clearly management. And maybe before we're ranchers, we're greenkeepers. We take care of the grass. That's the main thing. If you have good grass, if you have good pasture management, then the rest follows. You just have to get the cows

in the right pasture at the right time, get them out at the right time and the grass does the job. One of the most important things for us is grass management. It's very interesting. You follow the seasons. You follow the weather. You depend on a lot of things, but the decisions you make, they have an influence. Now, with experience, you see that you're right. It's nice. We have in Switzerland one of the best productions of grass in the world. We might as well take advantage of it and not waste it. Moving on from grass, which we humans can't use directly to milk or cheese by the cow, it makes sense. It makes sense. It's a whole cycle. It's synergies. In our country, we could hardly produce more calories than this, because of the weather, the altitude, the terrain. We are a grass country.

All the animals that leave, it's a pity. Then there are some that you think about a little more often. The cows too, sometimes you say to yourself, ah, that one, we should almost have kept her. It's a shame. But it's also the cycle, life.

The fear or stress is when the neighbor calls you and tells you that the heifers are out of the pen. Then you have the pump going up to 3000 rpm directly. That's a return of blood... That's a stress. You have to go and get them and there are roads, there are dangers. Or if you have a cow that's on the ground, sick or whatever. You hope it's going to get better. I don't know if it's fear. I've never had a cow attack me.

At home the cows give birth by themselves. Then we go and get the calf and put it in a separate box. We like to take the calf directly. That way the cow doesn't react, not too much anyway. It's clear that this can cause discussions or that ethically there are some who find it unfair. But for the moment it's the only way we've found. The problem is that if we leave the calf with the cow, it sucks the cow and we take the milk. But the milk loses in quality in fact. For Gruyère, we could not make such a good product. It bothers me, but it's a habit. But it's true that it would be a solution to leave the calf with the cow. But the opposite is explainable. The cow doesn't suffer, or not too much. We act immediately. She doesn't have time to get attached to the calf. I think this is perhaps important. After some time some calves returns

to the herd as cows. It is clear that to have milk, you have to have a calf. You have no choice. But as we work, to have milk, you have to have grass. So we do everything to have the best grass possible. Our cows are selected to bear easily, to make a calf per year.

The calf is not a waste. We produce milk, but also calves and meat. It is just as gratifying to produce meat as it is to produce milk. I am really in peace with my conscience to produce meat and to kill animals to eat them, to feed ourselves. I think it's normal.

I like milking and cows in the pasture, with that sound of the cow eating «scroutch, scroutch.» When you go out to mow, it's nice, you get the smell of the mowed grass. Everything you do make sense. You go out and mow the grass, you make hay to feed the cows in the winter. You bring manure outside, it's to bring fertilizer to the meadows. It's a big cycle. It's a pretty closed cycle. What comes out of the cycle is the milk, the meat or the calves. We're in the middle and we try to manage it as best we can.

We take care of growing grass. We try to get the cow to the grass when she's at her best. The cow, she eats, she defecates. That will help the grass grow back. This grass, she ingests it, ruminates it, transforms it into meat and milk. The milk is harvested and the meat is once the cow is slaughtered. The grass grows again and we bring the cow back. We are between the grass and the cow. The only thing we do is to bring the cow to the grass at the most appropriate time. And it's clear that we milk.

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