

Mapping agroecology in Switzerland

Master Thesis

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Master thesis
Master's degree program in Agricultural Sciences

Mapping agroecology in Switzerland

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 Association Agroecology Works!

14 December 2023

„The agroecological perspective invites us to embrace the complexity of nature and to see this complexity not as a liability, but as an asset.“

(Better and Different! Transforming Food Systems through Agroecology, 2017)



Cooperativa agricola Seminterra, Piano di Magadino, TI
(image: Nicolás Bossard)

Abstract

The intensification and globalization of agriculture has led to the unfolding of significant environmental, economic and social problems in the food system. Agroecology has emerged as a path towards the solution of these crises. Its relevance as a holistic paradigm for food system transformation has been widely recognized. To support its expansion, the mapping of agroecology has emerged as an essential tool to document its development and current state.

No mapping project on agroecological initiatives in Switzerland had been done. The aim of this thesis was thus to identify agroecology-related initiatives and provide an overview of the understanding, development and present state of agroecology in Switzerland. To achieve this, desktop research was combined with 14 key-informant interviews and an online survey distributed to initiatives Swiss-wide.

The term agroecology is not widely used in Switzerland yet but it is starting to influence the policy debate around future food systems in the country. A wide variety of initiatives in the categories of science, practice, social movement, education and living labs is already actively contributing to the agroecological transformation of the Swiss food system. Many of these initiatives do not explicitly refer to agroecology, but they all work in accordance with several agroecological principles.

Continuing strong efforts from social movements to break down economic and political barriers, as well as actively uniting a variety of stakeholders, in particular farmers and food producers, will be crucial for the further development of agroecology in Switzerland.

Zusammenfassung

Die Intensivierung und Globalisierung der Landwirtschaft hat zu erheblichen ökologischen, wirtschaftlichen und sozialen Problemen im Ernährungssystem geführt. Die Agrarökologie hat sich als ein Weg zur Lösung dieser Krisen herauskristallisiert. Ihre Bedeutung als ganzheitliches Paradigma für die Umgestaltung des Ernährungssystems ist mittlerweile weithin anerkannt. Die Kartierung («mapping») von agrarökologischer Aktivität hat sich als wesentliches Instrument zur Dokumentation ihrer Entwicklung und ihres aktuellen Standes erwiesen, um so ihre Ausbreitung zu unterstützen.

Bisher wurde kein schweizweites Projekt zur Kartierung von agrarökologischen Initiativen durchgeführt. Das Ziel dieser Arbeit war es daher, agrarökologische Initiativen zu identifizieren und einen Überblick über das Verständnis, die Entwicklung und den aktuellen Stand der Agrarökologie in der Schweiz zu geben. Dafür wurde Desktop-Recherche mit 14 Interviews mit Schlüsselpersonen und einer Online-Umfrage kombiniert, die an Initiativen in der ganzen Schweiz verteilt wurde.

Der Begriff Agrarökologie ist in der Schweiz noch nicht weit verbreitet, aber er beginnt, die politische Debatte über zukünftige Ernährungssysteme in der Schweiz zu beeinflussen. Eine Vielzahl von Initiativen aus den Bereichen Wissenschaft, Praxis, soziale Bewegung, Bildung und Living Labs tragen bereits aktiv zur agrarökologischen Transformation des Schweizer Lebensmittelsystems bei. Viele dieser Initiativen beziehen sich nicht explizit auf die Agrarökologie, aber sie arbeiten alle gemäss verschiedenen agrarökologischen Prinzipien.

Entscheidend für die weitere Entwicklung der Agrarökologie in der Schweiz wird sein, dass sich die sozialen Bewegungen weiterhin stark für den Abbau wirtschaftlicher und politischer Barrieren einsetzen und eine Vielzahl von Akteuren, insbesondere Landwirte und Lebensmittelproduzenten, aktiv zusammenbringen.

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I have been fortunate to count on the support of a multitude of people throughout the process of writing this thesis.

First, I would like to express my gratitude to my supervisors, Johanna Jacobi and Johanna Herrigel. It has been inspiring getting to work with two women who share a passion for agroecology. Thank you for your guidance, expertise and feedback throughout the entire research process.

Further gratitude belongs to the key-informants who have generously shared their time and knowledge. One develops a unique kind of appreciation for a conversation when reading it over and over during data analysis – I can truly say I have gained valuable insights for both this research and my personal worldview from each and every one of you.

A thank you to all the initiatives who took the time to fill out the online survey – 15 minutes can be valuable time spent doing other tasks and you all chose to spend it with this survey. I appreciate that. All of your contributions are an indispensable base to the insights of this research.

I also want to thank the team at Agroecology Europe, Alexander Wezel and Baptiste Gard, for answering my methodology questions and providing the opportunity to share the results of this thesis with a wider audience.

To the organizing team of the Days of Agroecology, I want to extend my appreciation for being so genuinely interested and invested in this work and offering a platform for me to present my preliminary results.

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I am truly grateful to all of you. All of your contributions have been crucial to make this thesis what it is now.



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

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Abbreviations and glossary

AP22+	Version of the Swiss federal agricultural policy developed to be implemented starting in 2022 (similarly: AP2030, the version implemented from 2030)
BGGB	Bundesgesetz über das bäuerliche Bodenrecht Federal “rural land law” regulating the acquisition of agricultural land
BFF	Biodiversitätsförderfläche BFF are biodiversity promoting structures on agricultural land (e.g., hedges or extensive meadows). They are defined in the agricultural policy and are the base of biodiversity related direct payments.
BTS	Besonders tierfreundliche Stallhaltung Federal direct payment program for “particularly animal-friendly housing systems”
CSA	Community Supported Agriculture
FAO	Food and Agriculture Organization of the United Nations
FiBL	Forschungsinstitut für biologischen Landbau Research Institute for Organic Agriculture
FOAG	Federal Office for Agriculture
FOEN	Federal Office for the Environment
FOSV	Federal Office for Food Safety and Veterinary Affairs
HLPE (-FSN)	High Level Panel of Experts (on Food Security and Nutrition)
ENoLL	European Network of Living Labs
IFOAM	International Federation of Organic Agriculture Movements
Initiative	Any type of formal action by an organization or a project working towards agroecology.
IP	Integrated Production
KI	Key-informant An expert on one or more of the five categories of agroecology that was interviewed for this thesis.
MAPC	Mouvement pour une agriculture paysanne et citoyenne Movement for peasant and citizen agriculture in the canton of Geneva
Microfarm (F: Microferme)	A farm cultivating a very small area of land (often only up to a few ha) with little machinery and a lot of manual labor. (Berger, 2022)
PGS	Participatory Guarantee System
PRE	Projekt zur regionalen Entwicklung Project for regional development
RAUS	Regelmässiger Auslauf im Freien Federal subsidy program for livestock with “regular access to the outdoors”
Romandie	French-speaking part of Switzerland
SFU	Swiss Farmers’ Union
TAPE	Tool for Agroecological Performance Assessment
WFSC	World Food System Center (ETH Zurich)

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1 Introduction

The industrialization (and intensification) of agriculture has brought with it significant environmental and social problems (Wezel, Goris, et al., 2018). The currently prevailing industrial food system is responsible for a third of greenhouse gas emissions worldwide (IPCC, 2022), causing biodiversity loss and soil erosion (IPES-Food, 2016). Simultaneously, the economic resilience of farmers is limited (Ashkenazy et al., 2018), working conditions in the agricultural sector are often poor and wages low (Christiaensen et al., 2021; Ekers et al., 2016). In sum, the dominant industrial food system cannot continue to function as it is now: a change is imperative (IAASTD, 2009).

Agriculture in Switzerland

Switzerland is no exception to the problems the global food system is facing. Most of the country's agricultural sector has also been intensified immensely in the last decades (Huber, 2022; Vision Landwirtschaft, 2023). A low per capita area of farmland (OECD, 2015), increasing mechanization and import of inputs have resulted in the simultaneous increase of production output and environmental damages (Schlöpfer, 2018). The input of pollutants from agriculture is affecting sensitive ecosystems and water sources (Schlöpfer, 2018). Biodiversity on agricultural land is decreasing – especially in intensively managed areas in the lowlands, but increasingly also at higher altitudes (Meier et al., 2021). Switzerland's agricultural system is thus not fulfilling the environmental goals on biodiversity, soil, water and climate it is striving to meet (Bundesamt für Landwirtschaft BLW, 2016b).

Besides failing to meet ecological demands, the Swiss food system also struggles to fulfill social requirements: The workload is high (Agrarbericht 2022, 2022) while wages are low (Bundesamt für Statistik BFS, 2023; Huber, 2022). Moreover, there is a lack of public appreciation for the farming sector (Saleh & Ehlers, 2023).

Agroecology as the way forward

To ensure long-term food security, the food system needs to be transformed in a sustainable way (Fesenfeld et al., 2023; IPCC, 2022). Agroecology has emerged as a viable alternative paradigm to the current problems that provides holistic solutions (FAO, 2018; Gliessman, 2016b; IPES-Food, 2016). It bridges the environmental, social and economic contexts of agriculture, resulting in a food system where, as Balogh et al., (2020) put it, “the needs of communities and the integrity of the ecosystem are well balanced”.

The relevance of agroecology as a potential solution to these crises has now been widely recognized by different actors. In 2009, the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) documented the necessity of transforming agriculture, food production, and consumption through the lens of agroecology (IAASTD, 2009). The Food and Agriculture Organization of the United Nations (FAO) recognizes the need for change in today's food systems and describes agroecology as a locally adapted agricultural practice that can feed the world's current and future population (FAO, 2018). The Intergovernmental Panel on Climate Change (IPCC) has also presented agroecology as a solution to adapt to the climate-related problems adversely affecting food production (Intergovernmental Panel On Climate Change (IPCC), 2023).

Research gap

The mapping of agroecological activity has emerged as a tool to document its current state and thus support the expansion of agroecology (Agroecology Europe, 2023a). For Switzerland, no such mapping project has been done on the variety of agroecological initiatives that exist in the country. This thesis aims to fill that gap by creating an overview of agroecological

initiatives and exploring their activities, thus attaining insights on the larger “state of agroecology” in the country. The project is not aiming to be exhaustive, but can provide key information on agroecology in Switzerland using illustrative data.

Motivation

My personal motivation in choosing this project lay in the conviction that the prevailing agricultural system in Switzerland has significant shortcomings. I therefore wanted to better understand its functioning, explore alternatives and support research on their expansion. As agriculture (and agroecology, for that matter) is such a locally rooted topic, I saw the relevance of gathering data on its current state in the context I know best – Switzerland. I was intrigued by the practice-oriented approach of this work, which would allow me to not only connect with interesting people, but also have a real-life impact with the work I would be doing. Furthermore, the broad nature of the project allowed me to dive deeper into a variety of subtopics within the field of agroecology and agriculture in Switzerland.

Research questions

The following research questions are posed with the aim of gaining a broad overview of agroecological activity and development in Switzerland:

- How transformative is the understanding of agroecology in Switzerland?
 - Which barriers and opportunities play into the understanding of agroecological transformation of the food system in Switzerland?
- What has the development of agroecology been like in Switzerland?
- What is the current state of agroecological activity in the five categories of science, movement, practice, living lab and education in Switzerland?
- Which agroecological initiatives exist in Switzerland?
 - How can the initiatives be characterized?
 - What is their geographical distribution?

The following chapter provides context and a theoretical framework for the thesis. It illustrates an understanding of agroecology based on 13 principles and describes categories, into which agroecological activity can be divided. It also introduces the concept of food system transformation and explores how mapping projects, such as this thesis, are relevant to such transformation.

This is followed by a chapter on methodology, where the study design as well as the data collection processes of desktop research, online survey and key-informant interviews are described in detail.

Subsequently, results are discussed. The results section starts out with an exploration of the understanding(s) and definition(s) of agroecology in Switzerland. It continues by describing the development of agroecology in the country on the basis of key events and relevant policy documents. In a third part, a general overview of the state of agroecology, sorted by activity categories and based on qualitative interview data, is presented. Finally, concrete agroecological initiatives are characterized on the basis of data from an online survey.

The thesis concludes with a discussion, which returns to the research questions posed in this section. The findings are put into perspective and discussed for their implications and future relevance.

2 Context and framework

This chapter outlines the broader context of Swiss agriculture and agricultural policy this thesis is placed in. It continues by defining the theoretical framework that is used for the research. To conclude with, the relevance of mapping projects for agroecology is discussed and previous mapping projects in Europe are presented in more detail.

2.1 Agriculture, agricultural policy and agroecology in Switzerland

Switzerland has a total land area of approximately 41,290 km², around 36% (10'400 km²) of which is dedicated to agricultural activities (Schweizerische Arbeitsgemeinschaft für Berggebiete (SAB), 2022). At 58%, the majority of farmland is permanent grassland, while arable land makes up 38% (Federal Office for Agriculture FOAG, 2022).

Switzerland's diverse geography is reflected in its agricultural practices across different regions: The Swiss Plateau, located between the Jura Mountains and the Alps, is the most densely populated and agriculturally productive region. It benefits from fertile soils and a temperate climate, making it suitable for arable farming (Agrarbericht, 2023b). In contrast, the mountainous regions in the Alps and the Jura present more challenging conditions for agriculture. These areas are well-suited for livestock farming, particularly grazing of cattle and sheep, and characterized by less intensive farming systems (Schweizerische Arbeitsgemeinschaft für Berggebiete (SAB), 2022).

Similar to other European countries, Switzerland's agricultural sector has been undergoing a structural change. The past decades have seen a continuous increase of farm size and a decrease of total farm number (Agrarbericht, 2023a). Land use has been intensified and rationalized on the remaining farms (Achermann et al., 2023). Today, agriculture plays a minor role in the Swiss economy, contributing less than 1% to GDP and employing about 4% of the workforce (OECD, 2015). Nonetheless, with more than three quarters of employees classified as family members and average farm size at 22ha, Swiss agriculture is still characterized by small-scale, family farming (Figure 1) (Federal Office for Agriculture FOAG, 2022).

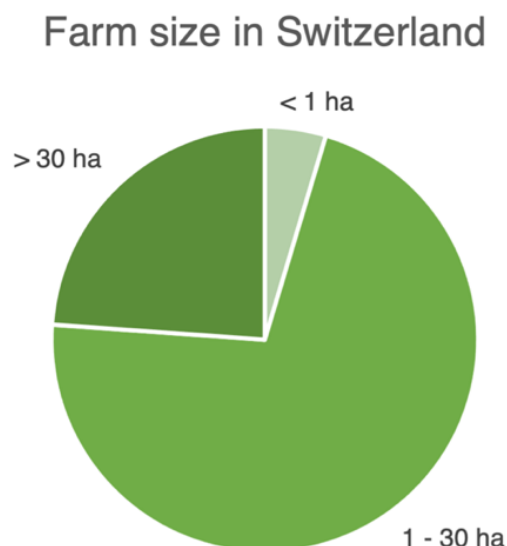


Figure 1: Farm size in Switzerland (Bundesamt für Statistik, 2023)

In 2022, Switzerland counted 48'344 farms, a decrease of 1.1% (or: 520 farms less) compared to the previous year (Agrarbericht, 2023a). Figure 2 shows the decrease in the number of farms since 2001 (Bundesamt für Statistik BFS, 2023). Notably, while the number of farms under 30 ha has been decreasing overall, the number of farms with less than 1ha of land (*Kleinstbetriebe*) has increased (Bundesamt für Statistik BFS, 2023). The number of organic farms has also been increasing (in green in Figure 2) and organic farms now make up almost a sixth of total farms in Switzerland (Agrarbericht, 2023a; BioSuisse, 2022).

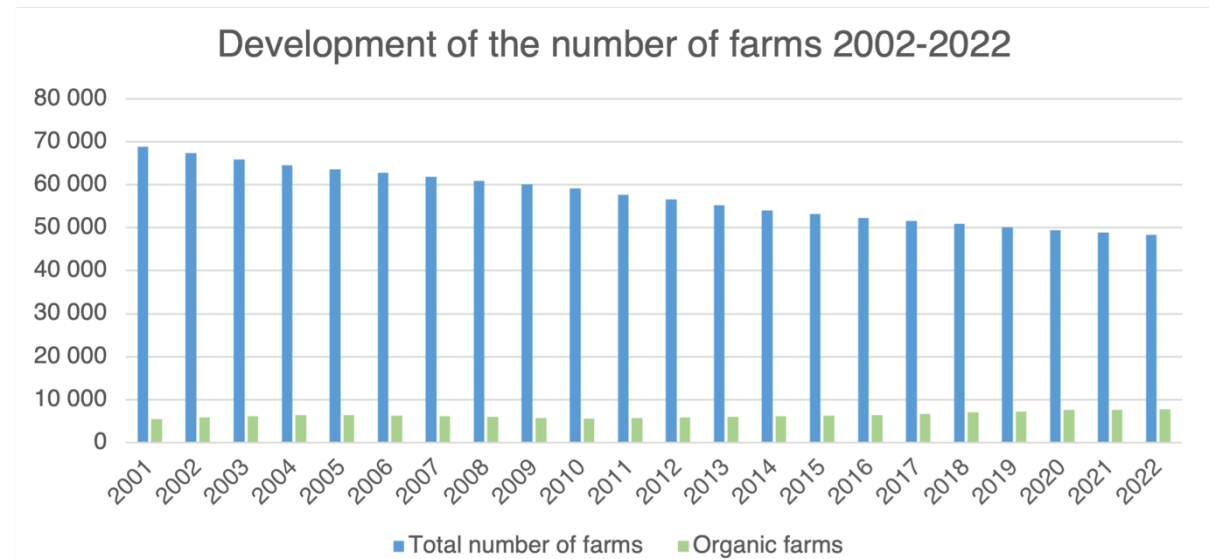


Figure 2: Development of the number of farms in Switzerland from 2001 - 2022

Agricultural policy

A closer look at Swiss agricultural policy helps understand the possible relevance of agroecology for the Swiss food system. Art. 104 of the federal constitution, voted on by the Swiss voting population in 1996, forms the basis for agricultural policy in Switzerland (Huber, 2022). The main objectives of the agricultural policy, and thus its constitutional mandate, are (OECD, 2015):

1. Food security of the population
2. Preservation of natural resources (sustainability of agricultural production)
3. Maintenance of the cultural landscape
4. Decentralized settlement of the country (maintaining rural areas)

This multifunctionality (= fulfilling both environmental and social goals) of agriculture is reflected in the importance attributed to agriculture in Switzerland: Farmers are not only feeding the population but also contributing significantly to the conservation of Switzerland's cultural landscape (Amos, 2023; Huber, 2022).

Direct payments

Switzerland has one of the highest levels of monetary support for farmers worldwide (OECD, 2015)¹. Direct payments make up a significant portion of farmers' income, making state policies highly relevant to the way farmers act and produce (Huber, 2022). About 5% of federal expenditure is spent on agricultural policy each year (Huber, 2022).

In accordance with the understanding defined in the constitution, farming subsidies are paid out not only for food security, but also for ecological and landscape conservation measures

¹ Measured in percentage of Producer Support Estimate (PSE), which indicates the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers. (OECD, 2015)

(Bundesamt für Landwirtschaft BLW, 2023a; Huber, 2022). Payments are divided into five categories, each of which contributes to a specific agricultural policy objective (Huber, 2022). There are social, structural and ecological prerequisites to receiving direct payments (e.g., minimum farm size and agricultural training) (Huber, 2022). The proof of ecological performance (ÖLN) was established in 1996 as a prerequisite with the aim of ensuring that agriculture meets minimum ecological requirements (BLW, 2022; Huber, 2022). However, these minimum requirements have not been enough to mitigate the negative ecological effects of the Swiss agricultural system (Gubler et al., 2020; Meier et al., 2021; Wittmer et al., 2014).

Recent developments in agricultural policy

Because the agricultural policy is anchored in the federal constitution, agricultural policy in Switzerland is principally regulated on a federal level. The Federal Council is a central actor in the development of the sector: Every four years, it decides on the next agricultural reform and thus on the future direction of the Swiss agriculture (Huber, 2022). In addition to the decisions of the federal council, the democratic system in Switzerland allows its citizens to take democratic action by collecting signatures for popular initiatives (Huber, 2022).

In the last few years have, various such initiatives related to the food and farming system were voted on: referendums on 1) the ban of synthetic pesticides (Federal Council, 2021a) and 2) for clean drinking water in 2021 (Federal Council, 2021b) and 3) a referendum on the abolition of factory farming in 2022 (Federal Council, 2022b). All of these referendums were rejected by the voting population, yet they show that ecological sustainability in agriculture and a transformational change in the food system are on the minds of Switzerland's population (Kummer, 2021). Additionally, even though they were not implemented, their core topics carried into the development of the subsequent version of the agricultural policy (AP22+) (Huber, 2022). However, the implementation of this policy was subsequently suspended by the parliament due to irreconcilable differences between different interest groups (Huber, 2022). A comprehensive update of agricultural policy was thus prevented. Instead, selected measures from the AP22+, intended to reduce the risks associated with the use of plant protection products and nutrient losses when handling fertilizers, were implemented in the form of amendments to ordinances in 2023 (Bundesamt für Landwirtschaft BLW, 2023b).

The Swiss Farmers' Union (SFU) is a particularly well-organized and powerful interest group in the Swiss political landscape and influences many agricultural policy decisions with its protectionist stance (Huber, 2022). The SFU and its parliamentary representative consistently play a central role in the agenda setting of agricultural policy (Huber, 2022). This group of parliamentarians unites not only farmers, but officials at major distributors, chemical companies or insurance companies (Mistic, 2023). In the most recent federal elections in October 2023, the number of representatives of farmers' interests in parliament increased once more to make up about a sixth of parliament (Barth & Hostettler, 2023; Rentsch, 2023). Their influence thus continues to be high.

General outlook

The suspension of the AP22+ has delayed the tackling of the pressing challenges in the sector (WWF Schweiz, 2023). The next comprehensive reform of the federal agricultural policy is scheduled for 2030 (AP30). According to a postulate report by the Federal Council, the AP30 will be embedded in a food system perspective (Federal Council, 2022a). The measures will thus move away from a sectoral policy and take into account both actors in the value chain (e.g., farmers, retailers, processors) and consumers or citizens (Huber, 2022).

With its small-structuredness, the direct democratic system and the strong monetary support of agricultural producers, Switzerland shows good prerequisites for a sustainable transformation of its food system (Fesenfeld et al., 2023; Kummer & Jacobi, 2023). However,

the systemic support of agroecology through policy measures will be crucial to the upscaling of agroecology (Kummer, 2021; Wezel, Goris, et al., 2018). The upcoming steps in the agricultural policy development will thus determine the development of agroecology in Switzerland in the foreseeable future.

This introductory chapter aimed to give a general glimpse into the functioning of agricultural policy in Switzerland. A more detailed look at agricultural policy measures and developments as they relate to agroecology is provided in the results section. This chapter continues with the outline of the theoretical framework of this thesis.

2.2 Definitions

Agroecology has been receiving increasing attention recently, but it is not a new invention (FAO, 2018). As it has been used by different stakeholders, the term agroecology has been defined to mean different things, depending on the perspective and activity of the user.² This thesis uses the understanding of agroecology as **a science, a practice and a social movement**, as formulated e.g., by the Association of Agroecology Europe:

Agroecology is considered jointly as a science, a practice and a social movement. It encompasses the whole food system from the soil to the organization of human societies. It is value-laden and based on core principles.

*As a **science**, it gives priority to action research, holistic and participatory approaches, and transdisciplinarity including different knowledge systems.*

*As a **practice**, it is based on sustainable use of local renewable resources, local farmers' knowledge and priorities, wise use of biodiversity to provide ecosystem services and resilience, and solutions that provide multiple benefits (environmental, economic, social) from local to global.*

*As a **movement**, it defends smallholders and family farming, farmers and rural communities, food sovereignty, local and short marketing chains, diversity of indigenous seeds and breeds, healthy and quality food – (Agroecology Europe, 2023b)*

The three pillars of this definition have been used with various importance in different time periods and geographical contexts (Wezel et al., 2009). The following subchapter dives into the relevance of the different parts of agroecology in Europe.

2.2.1 Manifestations of agroecology

This chapter illustrates the different manifestations of agroecology, focusing especially on the European context. The three major elements of agroecology – scientific discipline, social movement and agricultural practice – are explained (Wezel et al., 2009). To better reflect the entirety of agroecological activity in Europe, the categories of *living lab* as well as *education and training* have been added (Wezel et al., 2023). The five **activity categories**³ are explained in detail in the following chapter and illustrated in Figure 3.

² The FAO Agroecology Knowledge Hub provides an overview of the diverse definitions of agroecology (<https://www.fao.org/agroecology/knowledge/definitions/en/>).

³ The “major elements of agroecology” in Figure 3 are also frequently referred to as “pillars of agroecology” in the literature. The term “activity category” in this thesis is used for the classification of the activities of agroecological initiatives.

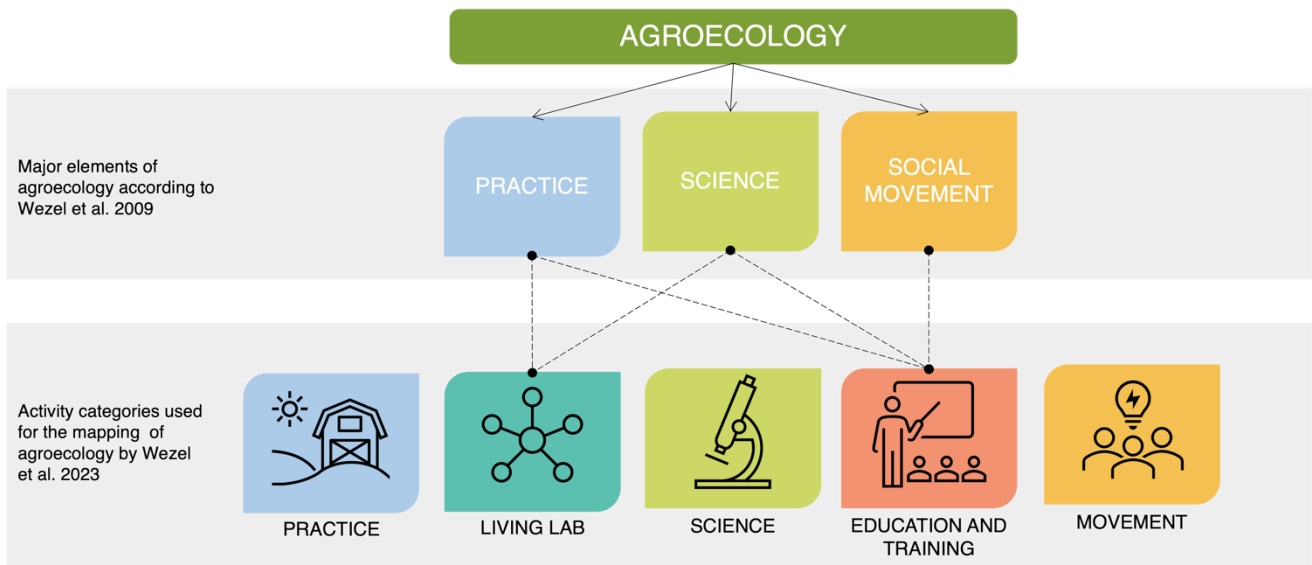


Figure 3: Three main elements and five activity categories of agroecology (own illustration, based on Wezel et al. 2023)

Agroecology as a science

A first scientific publication with the keyword “agroecology” was published in 1928 (Bensin, 1928; Wezel et al., 2009). The initial **understanding** was, quite literally, “the application of ecological methods in agriculture” (Wezel & Soldat, 2009). Later, the term gained importance in the scientific community as a “conceptual framework for the study of agroecosystems” that focused on the sustainable management and design of agroecosystems (as in, an ecosystem that is human-managed and used for agricultural purposes) (Wezel & Soldat, 2009). At the beginning of the 21st century, the definition started to move away from the agroecosystem towards the study of the “ecology of food systems” (Francis et al., 2003; Gliessman, 2007). By many actors in European countries today, agroecology is perceived as a scientific discipline first and foremost (Gallardo-López et al., 2018).

The **scale** of scientific research on agroecology has expanded in the last 80 years from 1) the plot scale, via 2) the agroecosystem/farm scale to 3) the food system scale (Wezel & Soldat, 2009). Figure 4 illustrates the development of the dimension in the definition of agroecology. Today, research on the different scales coexists, though research on the farm scale is the most common (Balogh et al., 2020; Gallardo-López et al., 2018).

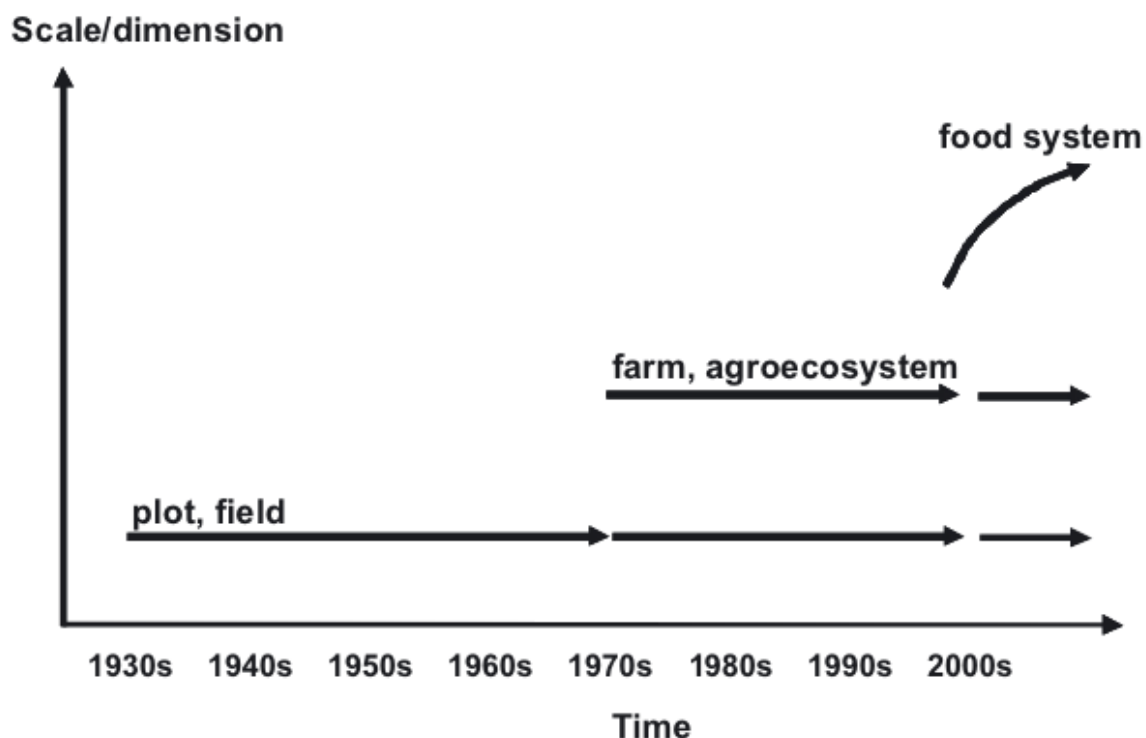


Figure 4: Temporal changes in scale and dimension in the definition of agroecology in research (Wezel et al. 2009)

When looking at the **topics** of agroecological research, keywords including sustainability, biodiversity and sustainable development have gained importance in the last two decades (Wezel & Soldat, 2009). Topics that have consistently been relevant in the field include cropping systems and soil (Wezel & Soldat, 2009). When focusing on the food system scale, agroecological research encompasses food production systems, including their ecological, societal, economic and political aspects (FAO, 2018). Accordingly, it connects a variety of scientific disciplines from agronomy to sociology, making it a transdisciplinary approach (Wezel et al., 2009) that is increasingly focusing on the interrelatedness of its elements (Balogh et al., 2020; HLPE, 2019).

Agroecology as a social movement

Social movements play an indispensable role in agroecology. Food systems are the result of a millennia-long co-evolution of ecosystems and the humans living in them – the social and political dynamics of these systems are thus at the heart of their sustainable transformation (González De Molina & Guzmán, 2017; HLPE, 2019). Social movements for agroecology advocate for agroecology as a solution to the current crises of the food system, paying explicit attention to its social and political dimensions (Wezel et al., 2020).

In 2007, food providers from all over the world gathered in Mali and discussed their understanding and requests for **food sovereignty**, resulting in a declaration which emphasized the essential role of the movement for food sovereignty on the way to establishing sustainable food systems (Forum for Food Sovereignty, 2007). For the European context, campaigning against Free Trade Agreements, building on existing campaigns (e.g., against genetically modified organisms) and promoting community supported agriculture (CSA) systems were identified as crucial on the path to food sovereignty (Forum for Food Sovereignty, 2007).

In 2015, worldwide actors from the social movement gathered again and presented “the first joint vision of agroecology from the shared viewpoints of all kinds of small-scale food producing peoples” (International Forum for Agroecology, 2015). This “Declaration of Nyéléni” has become a crucial document in the social movement for agroecology (HLPE, 2019; International Forum for Agroecology, 2015).

The history of the social movement in Europe is also strongly interconnected with the environmental movements against industrial agriculture (Gallardo-López et al., 2018; Wezel et al., 2009). In Andalusia, Spain, the intersection of the laborer movement and the environmental movement in the 1980s led to the emergence of an understanding of agroecology with a strong sociopolitical orientation, contributing to today’s understanding of agroecology in Europe (González De Molina & Guzmán, 2017). These movements did not initially use the term agroecology to describe their activity – it was only in the 1990s that the term was adopted (Wezel et al., 2009). The term “agroecology” came to be a way to consider agriculture not only for its production potential but also for its relationship with society (Wezel et al., 2009).

Agroecology as a term for social movements still plays a marginal role in the European perception of agroecology today (Gallardo-López et al., 2018). For Germany, Wezel et al. (2009) describe the perception of agroecology as related to social movements is described as “more or less nonexistent”. Instead, terms like “environmental”, “sustainable” or “food sovereignty” are more commonly used (Brumer et al., 2023; Wezel et al., 2009).

In sum, agroecology has become the political framework for social movements who defend smallholders and family farming, fight for food sovereignty, promote local and short food supply chains and fair food systems, strive for social equity between actors and healthy quality food for everyone (HLPE, 2019; International Forum for Agroecology, 2015). Concrete manifestations of the social movement for agroecology include Community Supported Agriculture (CSA) as a transformative, alternative production model (European CSA Research Group, 2016), NGOs, farmers’ organizations or political organizations.

Agroecology as agricultural practice

As a practice, agroecology aims to maintain sustainable, biodiverse, locally adapted agroecosystems (IPBES, 2018; IPES-Food, 2016). To achieve this, it attributes a lot of importance to solutions based on farmers’ knowledge (De Schutter, 2010). Agroecological practices focus on the sustainable use of resources, the application of ecological principles, climate change mitigation and adaptation, the geographic proximity between producers and consumers, and resilience of the system (Balogh et al., 2020; CIDSE, 2018; HLPE, 2019).

The understanding of agroecology as a set of agricultural practices in Europe emerged around the same time as the understanding of agroecology as a social movement (Wezel et al., 2009). The aim is to move away from industrial agriculture to build agroecosystems based on ecological processes and ecosystem services (Van Der Ploeg et al., 2019; Wezel et al., 2014). When analyzing agroecological practices in Europe, Gallardo-López et al., (2018) identified three main elements: crop production, animal production and landscape diversity. In crop production, Wezel et al. (2014) have created an overview of practices that can be considered agroecological. Similar to the science of agroecology, these practices can be sorted into 1) field scale, 2) farm scale and 3) landscape scale measures. On the field scale, they include measures on soil management (e.g., direct seeding and cover crops) and crop fertilization (Wezel et al., 2014). On the field scale, crop choice and crop rotation are essential elements, as well as techniques for weed and pest management (Wezel et al., 2014). Agroecological animal production may focus on lowering the greenhouse gas emissions of livestock, animal welfare or the contribution of livestock farming to biodiverse landscapes (Gallardo-López et al.,

2018). Finally, on a landscape scale, the management of landscape elements (e.g. the integration of hedges) is considered agroecological (Wezel et al., 2014).

Many of these practices are not new, but have existed and been applied for a long time (Wezel et al., 2014). Others have emerged more recently (HLPE, 2019).

The discussion about what exactly constitutes an agroecological practice is ongoing and there is no clearly defined boundary between agroecological and non-agroecological practices (HLPE, 2019; Van Der Ploeg et al., 2019). Instead, agricultural practices can be aligned on a spectrum of more or less agroecological (HLPE, 2019). Nonetheless, there is consensus about certain characteristics of agroecological practices: they reduce the dependence on external inputs, they are dynamic and constantly evolving and they are knowledge-intensive, involving farmers' knowledge and on-farm experimentation (Van Der Ploeg et al., 2019).

Agroecology and related agricultural practices

Agroecology is of course not the only concept for sustainable agricultural practices. Figure 5 illustrates the concepts for sustainable food production that are commonly associated with agroecology. Some of the concepts strongly overlap, while others are only marginally similar (Agroecology Info Pool, 2019). Other farming approaches commonly placed in the realm of agroecological practice are regenerative and biodynamic agriculture (Santoni et al., 2022; Tiftonell et al., 2022).

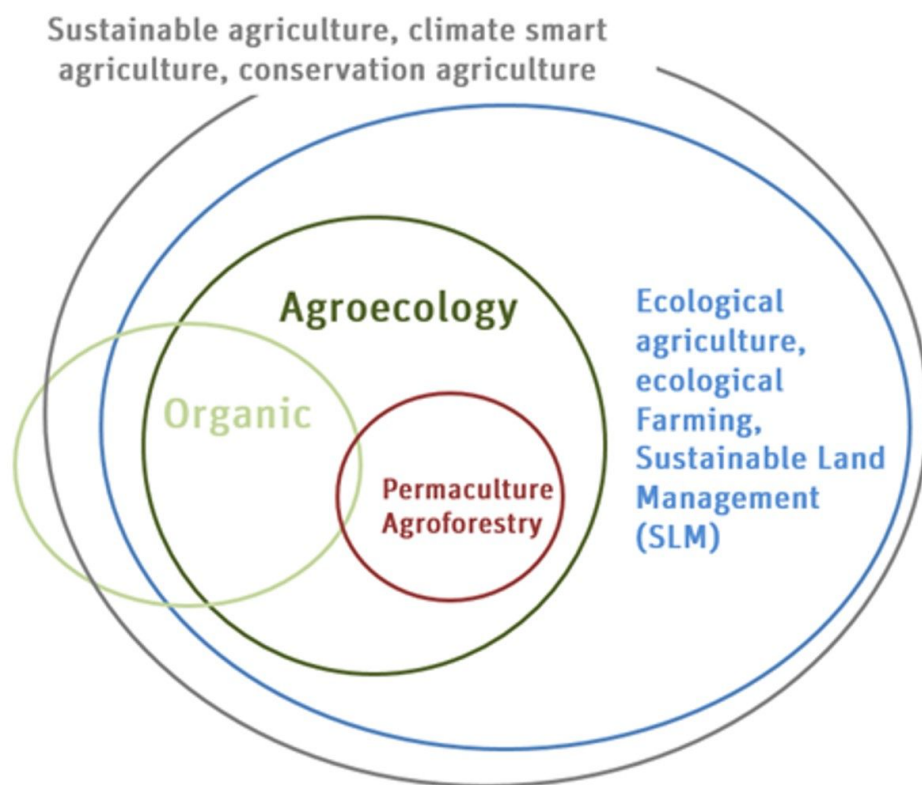


Figure 5: Agroecology and related concepts of agroecological practice (Agroecology Info Pool, 2019)

Implementation of agroecological practices in Europe

Most agroecological practices only play a minor role in European agriculture today. Often, they have had to make room for industrial practices and are now applied primarily in organic or integrated production (Wezel et al., 2014). Importantly, the term “agroecology” is not often used to describe these practices by those implementing them (González De Molina & Guzmán, 2017; Van Der Ploeg et al., 2019)

Practices with a good scientific knowledge base, existing on-farm experience and requiring a small level of system change have the best prospects of being more widely adopted in Europe in the near future (Wezel et al., 2014). Less-favored agricultural areas (e.g., mountainous regions), with less intensive production systems, have been predicted to adopt these agroecological practices first (Wezel et al., 2014).

Empirical data on agroecological production systems in Europe shows that income levels per person in agroecological farming systems can be equal to or higher than those in comparable conventional systems (Van Der Ploeg et al., 2019). In Switzerland, organic farms do better economically and employ more people than conventional ones, thus contributing more to the rural economy (Van Der Ploeg et al., 2019). Gazzarin et al. (2018) also showed that grassland-based farms in Switzerland achieve better economic results compared to those using higher levels of concentrate-feed.

Education and training for agroecology

This activity category of education and training was created in addition to the three main categories for the mapping of agroecology in Europe (Wezel et al., 2023). Its purpose is distinguishing initiatives and programs that exist outside the academic and scientific sphere and still provide valuable teaching and training on how to practice agroecology (Wezel, Goris, et al., 2018; Wezel et al., 2023). Change begins in training and education, which is why this category is highly relevant for agroecology. However, data shows that education and training for agroecology is still underfunded (Biovision Foundation for Ecological Development & IPES-Food, 2020).

Agroecology Living Labs

Living labs are a form of practice-oriented academic research in real-life settings (ENoLL, 2017). According to the European Network of Living Labs (ENoLL)⁴, they are “user-centered, open innovation ecosystems based on a (...) co-creation approach” (ENoLL, 2017).

In the specific context of this work, living labs are initiatives that conduct experiments on real farms and actively involve academics, farmers and other stakeholders as equal partners. They are spaces for long-term, place-specific, real-life experimentation. Importantly, they often combine methods from different fields of research, such as agronomy and sociology, in their approach (ENoLL, 2017).

Living labs are recognized as a relevant tool for agroecology by the European Commission in its project “Agroecology living labs and research infrastructures” (European Commission, 2019b; Wezel et al., 2023). Both living labs and agroecological approaches are closely linked to the “territory and community in which they are developed” (European Commission, 2019b). When fulfilling the criteria described here (co-creation of knowledge, active involvement of different stakeholders, real-life setting), living labs can support the (local) transition to agroecological food systems (Research Institute of Organic Agriculture FiBL, 2021).

2.2.2 Principles of agroecology

As the discussion around agroecology evolved, various sets of agroecological principles were developed by both scientists (e.g., Migliorini & Wezel, (2017); Nicholls et al., (2016)) and civil society organizations (e.g., CIDSE, (2018); Nyéléni, (2007)). In 2018, the FAO published 10 elements of agroecology to “guide the transition towards sustainable food and agricultural

⁴ The ENoLL was founded in 2006 with the aim of promoting the concept of living labs, influencing EU policies and enabling the implementation of living labs globally. It is an independent non-profit organization.

systems” (FAO, 2018).⁵ These elements emerged from an FAO-consolidated multi-stakeholder process, combined with a review of the relevant scientific literature (FAO, 2018; Wezel et al., 2020).

Building on the above-mentioned efforts, in 2019, the High Level Panel of Experts on Food Security and Nutrition (HLPE) published a consolidated set of 13 principles of agroecology (HLPE, 2019). These include political, economic, social and environmental factors and focus on the entire food system and its actors. The principles are organized around three operational bases for sustainable food systems: improving resource efficiency, strengthening resilience and securing social equity (HLPE, 2019). They are highly relevant because they provide an analytical tool and a guide to policymakers to operationalize agroecological transitions ((FAO, 2018; Wezel et al., 2020).

The 13 principles are described in Table 2 and put into the context of food system transformation in Figure 7.

Table 1: 13 principles of agroecology (adapted from HLPE, 2019)

Principle	Description
Improve resource efficiency	
1. Recycling	Preferentially use local renewable resources and close as far as possible resource cycles of nutrients and biomass.
2. Input reduction	Reduce or eliminate dependency on purchased inputs and increase self-sufficiency
Strengthen resilience	
3. Soil health	Secure and enhance soil health and functioning for improved plant growth, particularly by managing organic matter and enhancing soil biological activity.
4. Animal health	Ensure animal health and welfare.
5. Biodiversity	Maintain and enhance diversity of species, functional diversity and genetic resources and thereby maintain overall agroecosystem biodiversity in time and space at field, farm and landscape scales.
6. Synergy	Enhance positive ecological interaction, synergy, integration and complementarity among the elements of agroecosystems (animals, crops, trees, soil and water).
7. Economic diversification	Diversify on-farm incomes by ensuring that small-scale farmers have greater financial independence and value addition opportunities while enabling them to respond to demand from consumers.
Secure social equity/responsibility	
8. Co-creation of knowledge	Enhance co-creation and horizontal sharing of knowledge including local and scientific innovation, especially through farmer-to-farmer exchange.
9. Social values and diets	Build food systems based on the culture, identity, tradition, social and gender equity of local communities that provide healthy, diversified, seasonally and culturally appropriate diets.
10. Fairness	Support dignified and robust livelihoods for all actors engaged in food systems, especially small-scale food producers, based on fair trade, fair employment and fair treatment of intellectual property rights.

⁵ Diversity; co-creation and sharing of knowledge; synergies; efficiency; recycling; resilience; human and social values; culture and food traditions; responsible governance; circular and solidarity economy.

11. Connectivity	Ensure proximity and confidence between producers and consumers through promotion of fair and short distribution networks and by re-embedding food systems into local economies.
12. Land and natural resource governance	Strengthen institutional arrangements to improve, including the recognition and support of family farmers, smallholders and peasant food producers as sustainable managers of natural and genetic resources.
13. Participation	Encourage social organization and greater participation in decision-making by food producers and consumers to support decentralized governance and local adaptive management of agricultural and food systems.

These principles emerged with the aim of supporting the transition towards more sustainable food systems. In the next section, they are therefore put into context with a framework for food system transformation.

2.3 Food system transformation

The HLPE (2017) defines a food system as follows:

A food system gathers all the elements (e.g. environment, people, inputs, processes, infrastructures and institutions) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socioeconomic and environmental outcomes – (HLPE, 2017, p. 11)

The understanding of agroecology adopted in this thesis is that of agroecology as an inherently transformative discipline. Its aim is to transform food systems, rather than adapt them to the current industrial system (HLPE, 2017, p. 11).

This chapter thus outlines a framework for understanding food system transformation using five levels of food system change, which is combined with the elements of agroecology discussed in the previous chapter.

2.3.1 Levels of food system change

Gliessman (2016) defines steps on the road to transforming food systems for sustainability, so-called *levels of food system change*. The framework encompasses five levels, the first three of which relate to steps farmers can take on their own farms to move away from an industrial or conventional agroecosystem (Gliessman, 2016b). Levels four and five adopt a broader perspective and describe changes in the food system and the societies they are a part of (Gliessman, 2016b).

As a first step, **Level 1** is about **increasing the efficiency** of industrial and conventional practices. The more efficient use of industrial input reduces the need for inputs and mitigates their negative effects. Examples for level 1 transformative processes are improved application techniques for pesticides and optimum seed sowing density. (Gliessman, 2016b)

Level 2 describes the **substitution** of alternative practices for industrial inputs and practices. By replacing input-intensive products with more environmentally friendly ones, environmental degradation can be minimized. For example, the sowing of nitrogen-fixing cover-crops can substitute the application of synthetic fertilizer. (Gliessman, 2016b)

Levels 1 and 2 are described as *incremental*, as the basic agroecosystem is left the same and many of the same problems may still occur (Gliessman, 2016b). Levels 3 to 5 are considered

transformational: they go beyond the production level and focus on a fundamental change in the system (Gliessman, 2016b).

On **level 3**, a **redesign** of the agroecosystem takes place, so that it “functions on the basis of a new set of ecological processes”. By fundamentally changing the system, many problems can be prevented. Adjustments are made via management approaches and not (only) through external inputs. Examples include integration of animals with crops and the variety of agroforestry systems. (Gliessman, 2016b)

Level 4 focuses on “**re-establishing** a more direct connection between those who grow our food and those who consume it.” Alternative food system networks are formed and support the farmers working on levels 1-3 of the transition. Community supported agriculture (CSA) projects and food cooperatives are examples of this that bring consumers and producers closer together. (Gliessman, 2016b)

Finally, **level 5** “**builds** a new global food system, based on equity, participation, democracy, and justice, that is not only sustainable but helps restore and protects earth’s life support systems upon which we all depend.” Based on the foundations laid in levels 1-4, a deep seated change in thinking about and acting in food systems is initiated. This can for example entail considering the role of food systems for global climate change mitigation and adaptation. (Gliessman, 2016b)

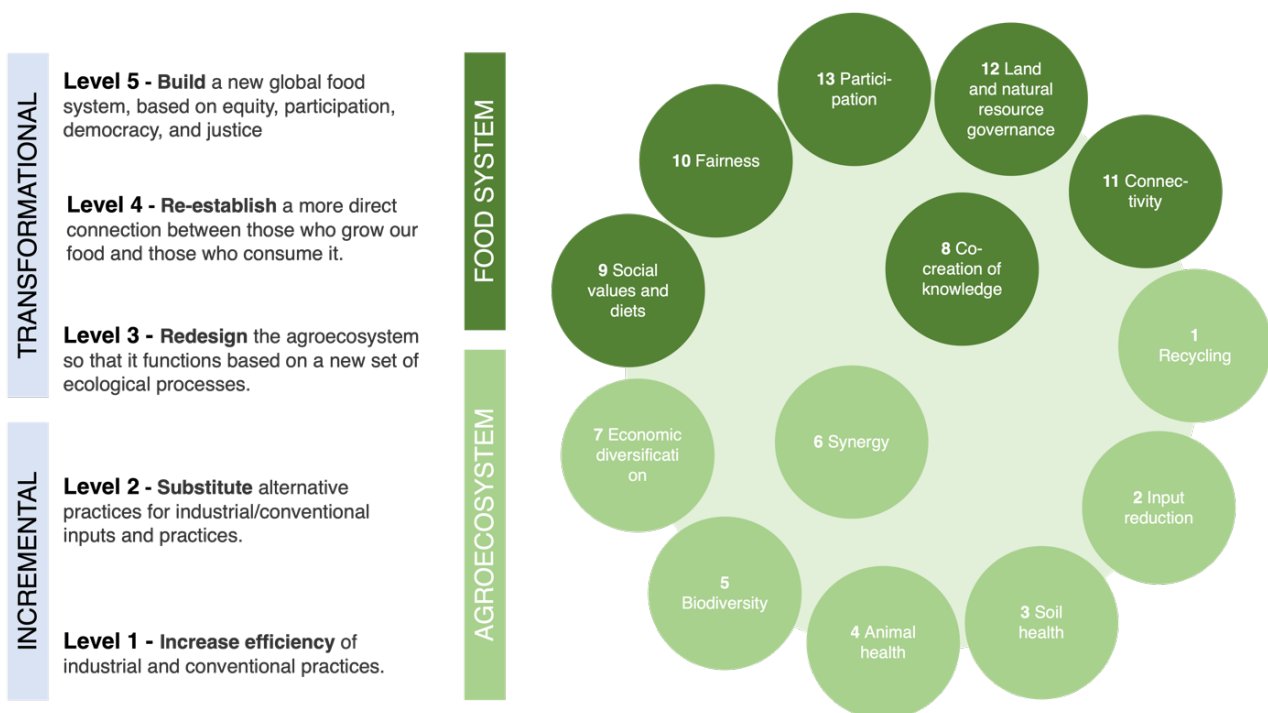


Figure 6: Five levels of transition towards sustainable food systems (blue) and the related 13 principles of agroecology (green) (adapted from Agroecology Europe, based on Gliessman (2016) and HLPE (2019))

It is important to note that these levels of transformation are not to be understood as a neat, successive chain of events, but as often simultaneous, overlapping processes (Gliessman, 2016b). Figure 6 puts the five levels of transformation in context with the 13 principles of agroecology.

The incremental **levels 1 and 2** relate to principles on the agroecosystem level, namely *animal health, soil health, biodiversity and input reduction*. **Level 3**, which is considered transformational, is also located on the agroecosystem level and addresses the principles of *economic diversification, synergy and recycling*. Re-establishing the connection between consumers and producers (**level 4**) is represented in the principles of *connectivity, co-creation of knowledge as well as social values and diets*. Finally, the building of a new food system (**level 5**) requires thinking of *participation, fairness and land and natural resource governance*.

While this one-to-one allocation of principles to levels of transformation does not accurately reflect the nuances of real-life, it is a useful tool to make statements on the state of agroecology in this thesis.

2.4 Mapping agroecology

Having explained the understanding and relevance of agroecology and food system transformation, the question remains why it is relevant to collect initiatives as was done for this thesis. This question is explored in the following chapter.

2.4.1 Relevance

The need to develop and strengthen agroecology in Europe was recognized by the FAO at the International Agroecology Symposium in Rome in 2018 (Wezel, Goette, et al., 2018; Wezel, Goris, et al., 2018). Enhanced knowledge exchange among diverse actors and strengthened communication about agroecological practices and their contributions have been identified as key action points for the development and scaling up of agroecology in Europe (Wezel, Goris, et al., 2018). Mapping activities (meaning not solely the association of an initiative with a geographical location, but the more general collection of information on initiatives) is a powerful tool to work towards this (Brumer et al., 2023; Milgroom et al., 2019).

Agroecological mapping projects are often performed with one of four main objectives in mind: inspiring people by showcasing good practices, networking, building an evidence base or marketing a product (Milgroom et al., 2019). Mapping projects are an opportunity to build social networks by gathering individual activities (Geels, 2011). Official recognition has been shown to be critical for successful networks and mapping can act as a tool to achieve this (Anderson et al., 2021).

2.4.2 Mapping agroecology in Europe

Showcasing agroecological activity has been the focus of several publications collecting examples of agroecological activity in Europe (e.g., ARC2020 & Friends of the Earth Europe, 2015; Inkota et al., 2017; IPES-Food, 2016; Moraine et al., 2016). These studies illuminate the range of agroecology in Europe (Wezel, Goette, et al., 2018). The state of agroecological development can vary from country to country – from well-developed to early stages (Gliessman, 2017).

In 2016, the association Agroecology Europe was launched as a way to connect European actors on agroecology (Gliessman, 2016a). In 2017, the first *Agroecology Europe Forum* was organized, focusing on fostering synergies among science, practitioners, and social movements (Agroecology Europe, 2017). In 2018, a special issue of the journal *Sustainability* titled “Mapping Agroecology in Europe. New Developments and Applications” was published (Wezel & Bellon, 2018). Most recently, the research project “Agroecology for Europe” (AE4EU), launched in 2021, is aiming to “accelerate the transition to sustainable agriculture and food systems in Europe” (Grard & Miskulnig, 2021). One of the project’s key goals is increasing the connection between relevant actors and mapping projects at different scales are conducted all over Europe to achieve this (Grard & Miskulnig, 2021). A first series of country reports mapping the development of agroecology in thirteen European countries was published earlier this year (Wezel et al., 2023). Further country reports, including one on Switzerland, are to be published before the end of 2023.

Selected mapping projects of agroecology in European countries that have been most relevant to this thesis are presented in the following paragraphs. A focus lies on state of the five activity categories and the understanding(s) of agroecology in the respective country.⁶

Italy, Greece and Spain (Migliorini et al., 2018)

This paper describes the state of agroecology in three euro-Mediterranean countries (Italy, Greece and Spain) using a mixture of literature review and expert knowledge. History of agroecology, research activity, collective action and practice in the respective countries are discussed.

The origins of use of the term agroecology in Italy lie in academia. In Spain, both academia and social movements played a role in establishing the term, while in Greece, the history of agroecology is most closely linked to the development of organic agriculture.

In all three countries, *research* and *training* in agroecology is still limited, but developing. A variety of agroecological *practices* is implemented in all three countries – mainly through organic, small and medium-scale agriculture. The situation of the *social movement* for agroecology differs: while agroecology in Spain has had a strong transformative profile from the beginning (González De Molina & Guzmán, 2017), there is only fragmented activity for political action in Italy and in Greece.

Due to the regions' rich agricultural traditions and high biodiversity, the authors see great potential for agroecology, if the transition is supported by the engagement of different actors within a coherent institutional framework.

Eastern Europe (Moudrý et al., 2018)

The study presents cases of agroecology development in Eastern Europe, namely in the Czech Republic, Slovakia, Bulgaria, Hungary, Poland and Romania.

Although the term agroecology was first used more than a century ago, agroecology only started to appear more prominently in Eastern European countries in the 1990s, when the negative impacts of the intensification of agriculture in the region led to the formation of a counter-movement. The history of agroecology in the region is thus closely linked to organic farming. Across the discussed countries, agroecology today is mainly addressed in *academia* and *educational* institutions. In most countries, study programs related to agroecology are taught at university level. However, only Slovakia has a research institute directly focusing on agroecology.

Another strong actor in the development of agroecology are *social movements* and NGOs. Yet, except for Hungary and Romania, no country houses NGOs focusing explicitly on agroecology.

In *practice*, agroecology is so far not perceived as a separate discipline. Instead, the strongest implementation of agroecological practices is through organic farming. For some countries (Bulgaria, Poland, Romania and the Czech Republic), the authors report that there are active efforts from policy-makers to support agroecology.

For the future development of agroecology, the authors name the support of government institutions and the inclusion of agroecology into professional education as essential factors.

Spain (Vicente-Almazán Castro et al., 2019)

The authors identified 100 initiatives promoting the transition to localized food systems⁷ in Spain and assessed their positive impacts in the social, environmental, political and cultural dimensions.

⁶ See <http://www.agroecologynow.com/mapping-for-food-system-change-list/> for further mapping projects globally.

⁷ Localized food system (*Sistemas alimentarios territorializados*) in this context are defined as a “group of agri-food industries that meet sustainable development criteria, are located in a geographical area of regional dimension and are coordinated for territorial governance”. (Rastoin, 2016)

The *production* sector takes the most important role, with almost half the identified initiatives attributed to it. Fewer initiatives were found in the processing sector or the *social movement*. The environmental, cultural and social dimensions were all found to be strongly represented by the initiatives, with the political lagging behind. Concretely, the categories of health (e.g. consumption of local food) as well as conservation of food and cultural heritage (e.g. commercialization of local food) are best implemented. This is followed by economic categories (e.g. short marketing channels and wage equity), with governance aspects (e.g. training and advice to public institutions, creation of participatory structures for decision-making) at the tail-end.

Selected important success factors of the initiatives are: partnerships, being part of a network or cooperative, a good communication strategy and shared values.

The understanding of agroecology and *scientific* initiatives were not considered for this study (see Migliorini et al. (2018) for more detailed information on the state of agroecology in Spain).

Hungary (Balogh et al., 2020)

The authors conducted a 10-month long mapping project, aiming to create a general overview of the state of agroecology in Hungary by analyzing the political and historical context in which it developed. They also documented agroecology related initiatives and their networks.

The understanding of agroecology in Hungary is primarily as a scientific discipline studying the ecology of agroecosystems. The definitions of agroecology both as a practice and – especially – as a social movement focusing on food systems are mostly unknown.

For the activity category of *practice*, the authors were able to identify a variety of initiatives whose farming practices, marketing channels and/or social values relate them to agroecology. Even though the definition of agroecology as a *social movement* is uncommon, there are initiatives working on topics related to the agroecological movement. There are also several *research* groups working on topics related to agroecology, some of which use participatory methods.

The authors conclude that agroecology is currently not well-established in Hungary. The missing discourse between science and practice and the lack of systemic policy support are identified as main barriers to its upscaling. However, the country is well situated for a transformation towards agroecology, considering its strong base of traditional knowledge, varieties and practices and the number and diversity of initiatives they were able to identify.

Austria and Germany (Brumer et al., 2023)

This publication analyzes the state of agroecology in Germany and Austria by assessing the main areas of activity, their development and the understanding of agroecology in the countries using literature review and expert interviews.

The term agroecology is not commonly known in either Germany or Austria. By those who do know it, it is understood mainly as a scientific discipline.

The *science* of agroecology is closely linked to organic agriculture in publications. The authors describe a fragmented research landscape but an increasing trend of publications relating to agroecology (e.g. on agroforestry or food systems). The *practical* application of agroecology is strongest through organic agriculture, especially in Austria. There are several *social movements* working on topics related to the concepts of agroecology, most commonly food sovereignty and CSA, but not all of them actually use the term agroecology. The study also includes the category of *living labs* in their analysis: It identifies several initiatives classified as living labs but finds that not all of them implement the principle of knowledge co-creation.

Looking forward, the authors underline the importance of agreeing on a common definition for agroecology, involving a variety of stakeholders and overcoming political and economic barriers for the agroecological transition in Germany and Austria.

2.4.3 Mapping agroecology in Switzerland

Networks between a variety of actors have also been identified as an important element for agroecology in the Swiss context (Kummer, 2021). The following publications have recently contributed to the mapping of agroecology in Switzerland:

Kummer (2021) explored the understanding of agroecology of different actors in Switzerland, analyzed barriers and opportunities for agroecological development and assessed the need for political action. In many circles in Switzerland, the term agroecology is only starting to establish itself. The development of a common understanding of agroecology is ongoing. Many initiatives are implementing agroecology through their activity without explicitly using the term itself. Nevertheless, agroecology is gaining popularity and more and more groups are forming around the concept.

Menzi (2023) evaluated initiatives in the social movement in the canton of Zurich. The study looked at the initiatives' objectives, their challenges and the forms of support they receive. It found that the goals developed in connection with the social movement "all receive significant support from initiatives in the canton of Zurich". The most common goal is the implementation of local food-chains. The most commonly mentioned challenges are the political framework and the concentration of power along the food value chain in Switzerland.

When it comes to collecting individual initiatives, the Biovision Foundation showcases examples of successful agroecological production systems in its project "Examples of a sustainable food system" (Biovision, 2023). A thesis written simultaneously to this one also showcases examples that will be included in the country report on agroecology in Switzerland published by Agroecology Europe (Agroecology Europe, 2023a).

So far, no broad overview of agroecological activity in Switzerland has been created. This thesis aims to fill this gap. The methods used to collect initiatives and gain insights on agroecology in the country are described in the following chapter.

3 Methods

This chapter describes the study design and the methods used for data collection and analysis used in this thesis. It outlines a three-part approach based on **desktop research**, an **online survey** and **key-informant interviews**.

3.1 Study design

The study design was developed in close cooperation with another master's student, with the idea of producing two complementary works on the general state of agroecology in Switzerland. An opportunity to write a country report on the state of agroecology in Switzerland for the research project AE4EU (Grard & Miskulnig, 2021) emerged early on. The studies were therefore designed to deliver adequate data for both theses and country report. The division of labor and overlap of data between this thesis and the country report is outlined in Figure 7 and further described in this chapter.

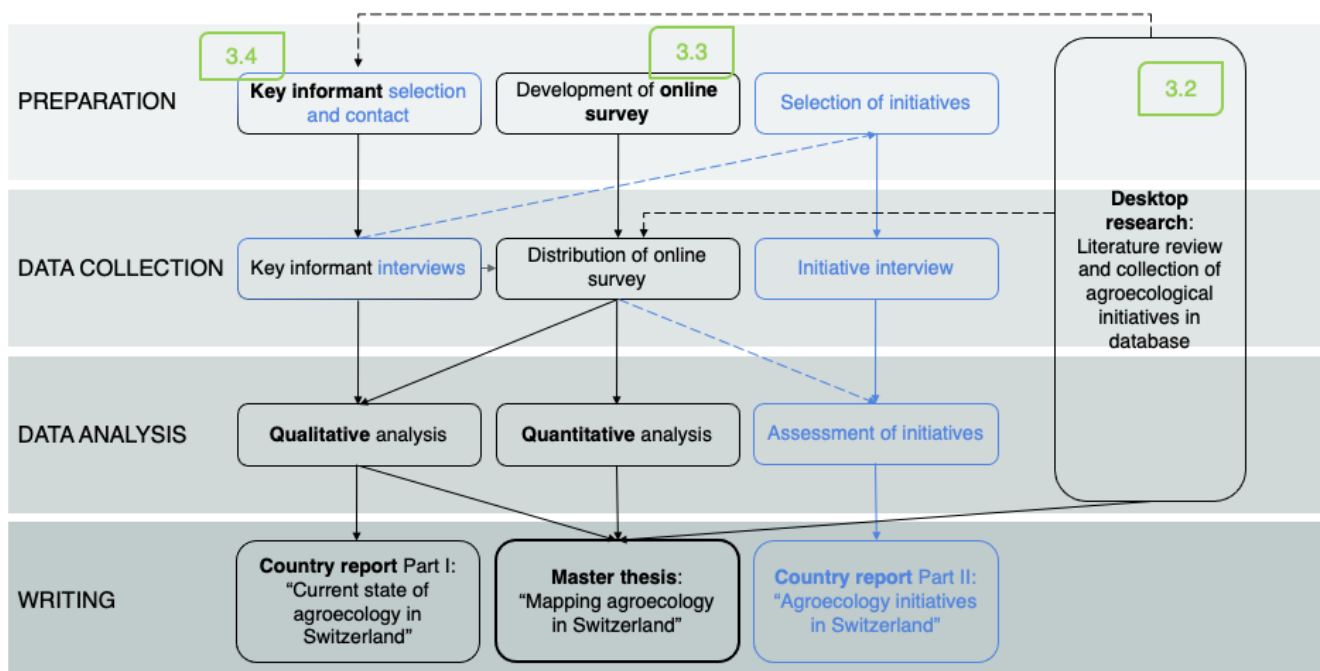


Figure 7: Workflow of this master thesis (in blue: steps done by Nicolá Bossard; in green: corresponding chapters in this thesis) (own illustration, adapted from Wezel et al. 2023)

3.1.1 Master thesis

A mixed-methods approach (Kuckartz, 2014, p. 33) was chosen for this thesis to best answer the different research questions: Evaluating the “state of agroecology” called for qualitative data that could mirror opinions and nuanced statements. On the other hand, assessing characteristics of initiatives such as their geographic location, could best be done using a quantitative approach. Parts of the study design were adopted from Agroecology Europe, who defined a common methodology for researchers participating in the AE4EU project (Wezel et al., 2023). This methodology includes the categorization of the data according to five activity categories (outlined in Chapter 2.2.1), as well as guidelines on key-informant interviews and their analysis. For a more general overview of agroecological activity in Switzerland, additional data collection was done by researching existing agroecological initiatives and distributing an online survey. Data collection thus relied on three aspects: **desktop research, an online survey and interviews with key-informants**. The three-part approach is described in detail in the following sub-chapters and outlined in black in Figure 7.

3.1.2 Country report on the state of agroecology in Switzerland

The country report on the development of agroecology in Switzerland consists of two parts: a general part describing the state of the five activity categories, and a specific part portraying and assessing a selection of agroecological initiatives (Grard & Miskulnig, 2021).

The description of the state of the activity categories is based on results from the key-informant interviews conducted for this thesis (Chapter 3.4) (Wezel et al., 2023). The second part of the country report and the initiative interviews forming the data basis for this are the work of Nicolás Bossard. The links between his work and this thesis are displayed in blue in Figure 7. The report will be published as part of a series of country reports by Agroecology Europe (Agroecology Europe, 2023a).

3.2 Desktop research

3.2.1 Identification of initiatives

To find agroecological initiatives in Switzerland, a combination of **agroecology-related search terms** and **snowball sampling** (Döring & Bortz, 2016, p. 160) was used.

As the term “agroecology” is not commonly used in initiatives’ self-descriptions (Menzi, 2023), a list of related search terms was created to cover the variety of activity categories (Balogh et al., 2020). These search terms were then entered into an online search engine (Google) in combination with the term “Switzerland” (*Schweiz, Suisse, Svizzera*) or more specific locations such as cantons or cities.

The list of keywords for the online search can be found in Appendix A.

The snowball sampling relied primarily on two projects that laid the foundation for the database of this thesis: Menzi (2023) identified 122 agroecological initiatives active in the social movement in the canton of Zurich and the Biovision Foundation, who is highlighting examples for a sustainable food system in a nationwide project (Biovision, 2023). The initiatives identified in these two projects were used as the base of the snowball sampling strategy.

Through the combination of the two strategies, an attempt was made to proceed as comprehensively as possible in the identification of new agroecological initiatives. However, due to time constraints and the fact that, apart from the initiatives collected by the two projects mentioned above, this was an initial identification for many regions of Switzerland, the resulting list cannot to be exhaustive.

3.2.2 Inclusion criteria

To be included in the database, initiatives had to fulfill the following criteria:

1. Initiatives must be located in Switzerland.
2. A relevant part of the activity of the initiative must take place in Switzerland.
3. The initiative’s activity can be attributed to at least one of the five activity categories.
4. Initiatives must engage in at least one HLPE principle of agroecology (HLPE, 2019) at the agroecosystem level and one at the food system level. This ensured a certain level of „transformational potential“ and excluded initiatives with no apparent interest in food system change.

In a second step, all initiatives identified in the desktop research were contacted to fill out the online survey.

3.3 Online survey

3.3.1 Structure

The online survey consisted of a mix of quantitative and qualitative questions. The survey was structured into four parts:

- I. General information about the initiative
- II. Perception of agroecology
- III. Inspiration for transformation
- IV. Information and consent

Part III consisted of a question about inspirational initiatives that participants know of. It was added as part of a master thesis on narratives around agroecology (Bossard, in preparation) and not analyzed for this thesis.

3.3.2 Development and testing

The survey was created using the online server KoBo Toolbox, which allowed the implementation of a variety of question formats and provided a clear visual layout (KoboToolbox, 2023). To ensure content quality and comprehensibility, qualitative pretests were conducted with two separate individuals (Döring & Bortz, 2016, p. 411). This was followed by minor adjustments in the wording and order of questions. To optimize the response rate, the survey was constructed to take about 15 minutes to fill out (Döring & Bortz, 2016, p. 415).

The full question catalogue can be found in Appendix B.

3.3.3 Distribution

Through an active recruitment process (Döring & Bortz, 2016) the survey was distributed via e-mail (or contact form on the website, if no e-mail address was available) to all 609 initiatives previously identified during the desktop research. Along with the link to the online survey, the e-mail also contained a short description of the thesis, its aim and methods. The first e-mail was sent on September 23, 2023. A reminder to those initiatives who had not yet participated was sent on October 3, 2023.

In addition to the active recruitment via e-mail, several organizations distributed the survey through other channels: Agroecology Works!⁸ and Permakultur jetzt!⁹ shared the link with the members of their mailing lists. Bionetz¹⁰ posted a call for submissions on their website (bionetz.ch, 2023a). The survey was also shared in the Telegram Channel of the association Landwirtschaft mit Zukunft¹¹.

3.3.4 Data analysis

125 valid answers were recorded between September 23 and October 18, 2023. Answers were exported from KoBo Toolbox into an Excel file. Before data analysis, submissions from the pretests and one duplicate entry were removed, the data was cleaned and anonymized¹².

Closed questions

A quantitative analysis was conducted for the closed questions in Part I and II. Descriptive statistics and visualization of the results were done using Microsoft Excel. Google My Maps was used to visualize initiatives' locations (Google My Maps, 2023).

⁸ <https://www.agroecologyworks.ch/de>

⁹ <https://www.permakultur-jetzt.ch>

¹⁰ <https://bionetz.ch>

¹¹ <https://www.landwirtschaftmitzukunft.ch>

¹² Name, website, location and main activity category of initiatives who gave consent to appear on a map of agroecological initiatives were noted separately. The rest of the data was anonymized.

Open questions

Open questions, including written answers on specific topics that the initiatives work on, comments on the status of certification and general comments, were analyzed quantitatively using MAXQDA 2022 (VERBI Software, 2021). In the first cycle, an inductive, eclectic coding method (a combination of in-vivo and open coding) was applied to the qualitative data (Saldaña, 2013, p. 91). Codes were then categorized and simplified for second cycle coding and codes with very few assigned citations eliminated (Patton, 2002, p. 462; Saldaña, 2013).

The final code system can be found in Appendix D.

3.4 Key informants

Fourteen key-informant (KI) interviews were conducted to gather qualitative data on the understanding and state of agroecology in Switzerland. Sample selection processes, interview questions and data analysis followed the methodological protocol developed by Agroecology Europe for their project “Mapping the development of agroecology” (Grard & Miskulnig, 2021; Wezel et al., 2023). The processes of interviewee selection, interviewing and data analysis are described in the following sections.

3.4.1 Selection of key-informants

The aim of this thesis required a selection of interview partners who were familiar with different aspects of agroecological activity in Switzerland and could provide information on one or more of the activity categories (Wezel et al., 2023). Key-informants were selected to reflect the variety of the Swiss agri-food system and geography (= be based in different (language) areas of the country). Table 2 shows the sources used to create an overview of possible key-informants.

Table 2: Sources for key-informant selection

Source	Description
Desktop research	Possible key-informants were identified during the initiative collection process for the database.
Literature	Authors of relevant literature (including grey literature) on agroecology in Switzerland were identified in the literature review.
Previous interviews	A previous thesis on agroecology in Switzerland conducted interviews with experts on aspects of agroecology_(Kummer, 2021).
Snowball system	As first interviews were being conducted, interviewees mentioned other possible interview partners that they considered relevant to this work.

Possible key-informants were categorized according to their main location (canton), expertise (activity category) and the main focus of their work. More possible key-informants were identified than were interviewed. Key-informants were then contacted via e-mail and informed about the aim of the project. If they agreed to participate, a consent and information sheet was sent before the interview. The anonymized list of selected key-informants, their geographical distribution, expertise and administrative information about the interviews is shown in Table 3.

Table 3: List of key-informants interviewed for this thesis. (Interviewers: RT - Rike Teuber, NB - Nicolás Bossard)

KI Nr.	Type of organization	Main focus	Pillar(s) concerned ¹³	Interview language	Duration [min]	Modality	Interviewer
1	University	Agricultural economics, sustainable food value chains	S, E	en	47	Video	RT
2	Farmers association	Organic agriculture, agricultural policy	M, P	de	47	In person	NB
3	NGO/Local government	Transformation of agri-food-systems, policy	M	de	68	In person	NB
4	Research infrastructure	Forage production, grassland systems	S	de	57	In person	RT
5	Research infrastructure	Modelling of land use and agri-food-systems	S	de	55	Video	NB
6	Grassroots organization	Local food culture and tradition	M, E	de	26	Video	RT
7	Association	Small-scale agriculture, food sovereignty, local production chains	M, P	en	38	Video	RT
8	Advisory service	Agricultural economics	L, P	de	49	Video	NB
9	Foundation	Agroecological transformation of food systems	M, L	de	65	In person	NB
10	Farmers organization/National council	Biodiversity, small farmers, agricultural policy	M, P	de (Swiss)	63	In person	NB
11	Environmental organization	Agricultural policy	M	de	43	In person	RT
12	Research infrastructure	Consulting, education and communication	S, E	de	50	Video	RT
13	Competence center	Sustainable development, culture and education	P, E, L	de	65	Video	RT
14	Farmers association	Organic farming	P, M	de	61	Video	NB

3.4.2 Interview questions

A semi-structured interview template was used to conduct the interviews. The template was provided by Agroecology Europe and can be found in Appendix C.

The semi-structured approach allowed questions to be prepared in advance as a guideline for the interview (Patton, 2002, p. 343), but also gave room for spontaneous deviation from the

¹³ E – education and training, L – living lab, M – movement, P – practice, S – science

guideline to ask in-depth questions about topics that came up during the conversation and thus respond to individual topics of interest (Döring & Bortz, 2016, p. 365).

The interview questions were originally in English, but the guideline was translated to German and the German version was used for those interviews that were conducted in German or Swiss German.

3.4.3 Conducting the interviews

A total of 14 interviews was conducted between August 4 and October 4, 2023. As the interview grid had been tested by Agroecology Europe, no sample interview was conducted. Nicolás Bossard and Rike Teuber conducted seven interviews each, following the same semi-structured questionnaire. Interviews were conducted in person (6) or via online video meetings (8). The online platform Zoom was used for the online meetings, as everyone was familiar with it, it allowed video transmission and interviews could be recorded directly in the program (Zoom Video Communications, Inc., 2023).

One interview was conducted in Swiss German and eleven in German. As neither of the interviewers speak fluent French, the two interviewees that did not speak German were interviewed in English.

3.4.4 Preparation of the data

All key-informant interviews were audio-recorded and a full automated transcription was done using Trint 2022 (Trint Limited, 2022). Transcripts were then edited manually to fix grammatical and spelling errors. Filler words such as “ähm” and word repetitions were deleted to allow for easier data analysis. In some interviews, a partial-transcription (Döring & Bortz, 2016) was used if the conversation veered too far off topic from the research questions.

If interviewees used expressions in a different language than the primary interview language (e.g., Swiss German or French words in a German interview), those were highlighted using quotes. Unintelligible passages or words were transcribed as (?) or (...). Unfinished sentences or statements were transcribed with “...”.

3.4.5 Data analysis

Interview grid

After transcription, key-informants were associated with a number (KI 1-14) to ensure anonymization. Interview responses were then entered into an Excel interview grid provided by Agroecology Europe. The interview grid provided a summarized overview of the conversations and was used as a reference during coding.

Coding

Each single-person transcript was imported to the MAXQDA project as a single document. Deductive first-cycle coding was done using structural coding (Gizzi & Rädiker, 2021) based on the semi-structured questionnaire and interview grid. This was combined with the elective coding of agroecological principles (HLPE, 2019) as well as barriers and opportunities for agroecology in Switzerland (Kummer, 2021). Quotes that stood out were saved as in-vivo codes (Saldaña, 2013, p. 91).

An inductive approach was applied during second-cycle coding to explore themes within the categories. In a third step, the descriptive second-cycle codes were restructured, duplicate codes merged and clear subcategories established (Saldaña, 2013, p. 210). Notes attributed to coded passages served as a tool to keep track of insights made during the coding process (Patton, 2002, p. 462).

The code system can be found in Appendix C. The coded interviews in combination with the interview grid and qualitative data from the online survey served as the data basis for the results on the state of agroecological activity in Switzerland. The database entries and quantitative data from the online survey and describe the variety of existing agroecological initiatives.

4 Results

This chapter presents the results of the desktop research, online survey and key-informant interviews. It starts with presenting the understanding(s) and definition(s) of agroecology that are found in the data and explores how strongly they are linked to food system transformation. In a second part, the temporal development of agroecology in Switzerland is analyzed on the base of key-events and policies. A third part describes the general state of agroecology in the country. The chapter concludes with the characterization of agroecological initiatives based on data from the online survey.

4.1 Understanding(s) of agroecology

4.1.1 Definitions and terminology

When asked to provide a definition of agroecology, many of the KI initially have difficulty providing a straightforward answer, perceiving the concept as “not conclusively defined” (KI 3) or “not clearly defined” (KI 11). The same issue also comes up in several comments on agroecology in the online survey.

More than half of KI understand agroecology mainly on an agroecosystem scale. A food system level approach is slightly less common but still discussed in a couple of interviews.

Eight key-informants refer to all three pillars of agroecology (science, social movement and practice) in their definition, some explicitly referring to the definition by Wezel et al. (2009). Three KI only talk about science and practice, not naming the social movement in their definition. Finally, three key-informants understand agroecology exclusively as a set of sustainable agricultural practices.

About half of key-informants’ understanding of agroecology factors the 10 FAO elements and/or the 13 HLPE principles of agroecology. Three key-informants incorporate the levels of transformation into their understanding of agroecology (Gliessman, 2016b). Two others emphasize the transformative character of agroecology without explicitly referring to levels of transformation.

The majority of initiatives in the online survey indicate that they know the term agroecology and its definition (Figure 8). However, the survey does not ask more specifically about how the initiatives define agroecology.

Are you familiar with the term "agroecology" and its definition?

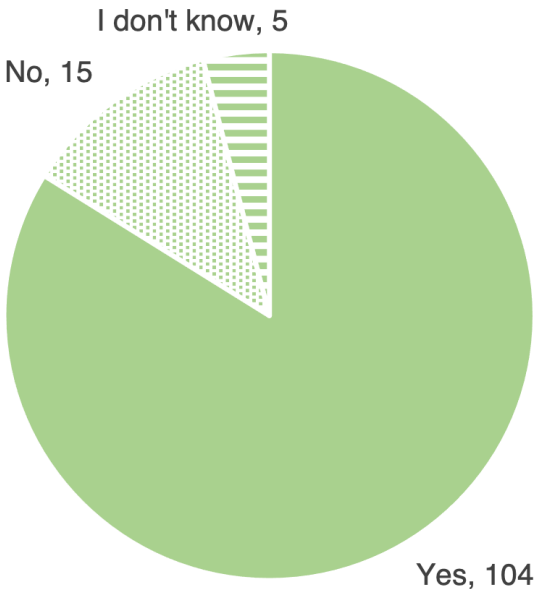


Figure 8: Survey responses on knowing the term agroecology and its definition

Other agroecology related terms

Sustainable agriculture, permaculture and regenerative agriculture are all commonly mentioned as agroecology related concepts by KI. In the online survey, commonly mentioned alternative terms are permaculture, regenerative agriculture, solidarity-based agriculture (CSA, *Solidarische Landwirtschaft*) and the terms biodiversity and sustainable.

4.1.2 Perception of agroecology

Use of the term

Figure 9 shows survey responses to the questions of whether initiatives *use* the term agroecology to describe their activity. While the majority of initiatives that filled out the survey do know the term, less than half use it in their activity. Table 4 shows that initiatives in the main activity category science have the highest percentage of using the term, followed by living labs and education and training. Social movement and practice use the term a lot less.

Do you use the term "agroecology" to describe your activity?

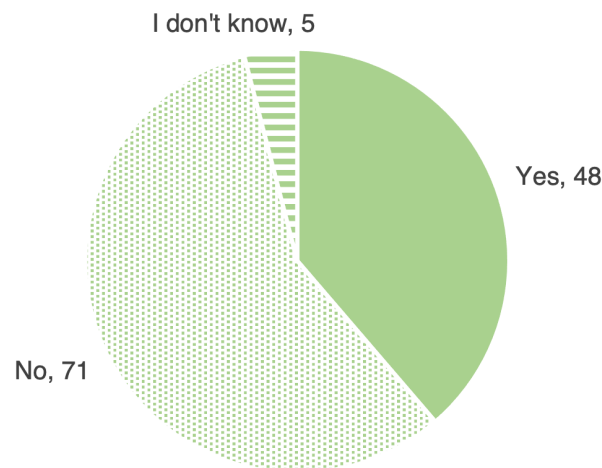


Figure 9: Survey responses on using the term agroecology

Table 4: Survey responses on knowing and using the term agroecology and the importance attributed to it

Activity category	Nr. of initiatives	Familiar with the term (nr.)	Familiar with the term (%)	Using the term (nr.)	Using the term (%)	Average attributed importance ¹⁴
Science	5	5	100%	4	80%	4.60
Practice	60	49	82%	18	30%	4.31
Social movement	35	27	77%	13	37%	4.39
Education and training	13	12	92%	6	46%	4.42
Living lab	12	11	83%	7	58%	4.25
Total	125	104		48		4.34

¹⁴ Averaged answers to the question "Do you think the concept of agroecology is important for the Swiss food system?" (rated from 0 – not at all to 5 – yes, definitely)

All key-informants know the term agroecology. Eight use it often or very often in their activity, six only rarely. Everyone in the category of science says they use the term agroecology “often” in their activity. Answers are more mixed (between “rarely” and “often”) for all other activity categories. The two KI that use the term “very often” are both active in the social movement (but other KI from the social movement category use the term “rarely”).

Importance of agroecology for Switzerland

The importance attributed to agroecology for the Swiss food system shows a similar pattern: it is highest in science, with the other categories not far behind (Table 6, right).

Enthusiasm

In the online survey, many of the initiatives perceive agroecology as very important for the Swiss food system. Both the **holistic** and the **transformative** character of agroecology are pointed out as characteristics that make it relevant:

Agroecology is (...) the one "concept" for sustainable food systems where these ideas of social foundations and ecological limits are incorporated.

Guiding principle for the transformation of the Swiss food system that is gaining momentum.

Agroecology is also often described as **indispensable** for the future of the Swiss food system:

If we want long-term and healthy food supplies and social peace, there is no way around agroecology.

Skepticism and ambivalence

A second group of initiatives is more ambivalent about agroecology in Switzerland. Some find it important in theory but see barriers for its development. The fact that agroecology is still mainly known in academia and not so much in practice is mentioned:

(...) concept is very holistic and promising, but it needs to bridge the gap from academic theory to practical applicability

Consumer awareness of the ecological problems in agriculture and whether they would be willing to pay for more ecological production is another point:

It is not important to many consumers or farmers, and in some cases it is even fiercely rejected

Lastly, initiatives perceive a lack of education and communication when it comes to agroecology.

Others do not attribute a lot of importance to agroecology as an approach:

There are so many terms regarding sustainable agriculture that not every term can be relevant

Rejection

In the survey, one initiative states that there is “no need” for agroecology. A number of initiatives declines to fill out the survey because they do not identify with the term agroecology to describe their activity. These include an advisory service provider for farmers, two NGOs whose activity mainly takes place outside of Switzerland, an online shop, a small producer and a regional label. Interestingly, three of these initiatives stress their commitment to the three aspects of sustainability (ecological, economic and social) in their responses, indicating a strong overlap of their activity with an agroecological understanding.

The *state* of the five activity categories of agroecology, according to the KI, is described in Chapter 4.4 in more detail.

4.1.3 Agroecology and organic agriculture

This section examines the entanglement of organic agriculture and the emerging agroecology movement in Switzerland. It puts a particular focus on the varying definitions, and the relevance of organic certification for agroecology.

Definition

The relationship between agroecology and organic agriculture factors into the understanding of agroecology in all but three interviews. Several KI use organic agricultural practices as part of their definition of agroecology. Some key-informants (especially those whose activities are closely related to the organic sector) are pretty skeptical about the usefulness of agroecology as a new concept in the “sustainable agriculture sphere”. Others see potential for agroecology and organic agriculture/the organic label to occupy different roles in a common landscape.

The subordinate role of social aspects of sustainability is perceived as a **shortcoming** of organic agriculture in comparison to agroecology by several KI. However, well-established alternative marketing channels (direct marketing and farmer’s markets), knowledge exchange between farmers and improved social recognition of the profession are named as exceptions to this lack of attention to the social. One KI describes it as follows:

Certain considerations in organic farming also go in the direction of agroecology. But it does not cover everything. – KI 4

Key-informants also mention the fact that it is well-defined and set out in law as an **advantage** that organic agriculture has compared to agroecology, with one KI saying:

Organic is very defined, in-depth and ramified. In the (...) 30 years that we have had common guidelines for all participants in Switzerland, we have gone into great depth and defined a great deal. In contrast, agroecology is based on a few principles that do not necessarily have to or cannot be enforced. There is a difference here, a difference in development. – KI 2

This spectrum of opinions on the pros and cons of organic agriculture compared to agroecology hints at a wider discussion around the concurrence of the two approaches. Further analysis on these narratives around the topic is being conducted for another master thesis (Bossard, in preparation).

Certification

Organic certification

The concept of certification as a tool for the *social movement* for agroecology comes up with a small group of KI and the organic movement is mentioned as an example of a pioneering social movement that has evolved into a widely recognized label.

Organic production is also the most common type of certification among initiatives in the survey. Reasons for initiatives operating *without* certification are that 1) there are no applicable forms of certification, 2) initiatives are focusing on close relationships with consumers instead of certification and 3) certification is viewed critically in general.

57 of the 125 initiatives that answered the online survey have at least one type of certification. Of those, 50% are certified organic (*Bio Suisse Knospe*). Figure 10 shows types of certification that are mentioned by at least two initiatives. Additional types of certification that are only mentioned once and not shown in the figure include Aus der Region, Agricultura Regeneratio, Fair Trade, Terre Durable, Zewo and Hochstamm Suisse, among others. 16 initiatives have more than one type of certification. Of those, eleven are Bio Suisse certified in addition to another type of certification.

The significance of the **organic label** for Switzerland is well-documented (BioSuisse, 2022; Niggli, 2000). The “Bio Suisse Bud” is widely known and can be found in a variety of marketing channels – from farmer’s markets to the large supermarket chains Migros and Coop. The ubiquity of the organic label has strengthened the confidence of consumers in the reliability of organic food (Niggli, 2000), but the strong presence of supermarket chains in the organic market also receives criticism (Rover et al., 2020). This is also reflected in the discussion with several KI in this thesis.

A number of initiatives are in the process of getting certified. Others mention that they work with, or on, a farm that is Bio Suisse certified but do not have that label themselves (i.e. a CSA or a farmers’ market). For others, there are no applicable forms of certification. These initiatives span a wide range of activities including foundations, retailers, associations, researchers and online platforms.

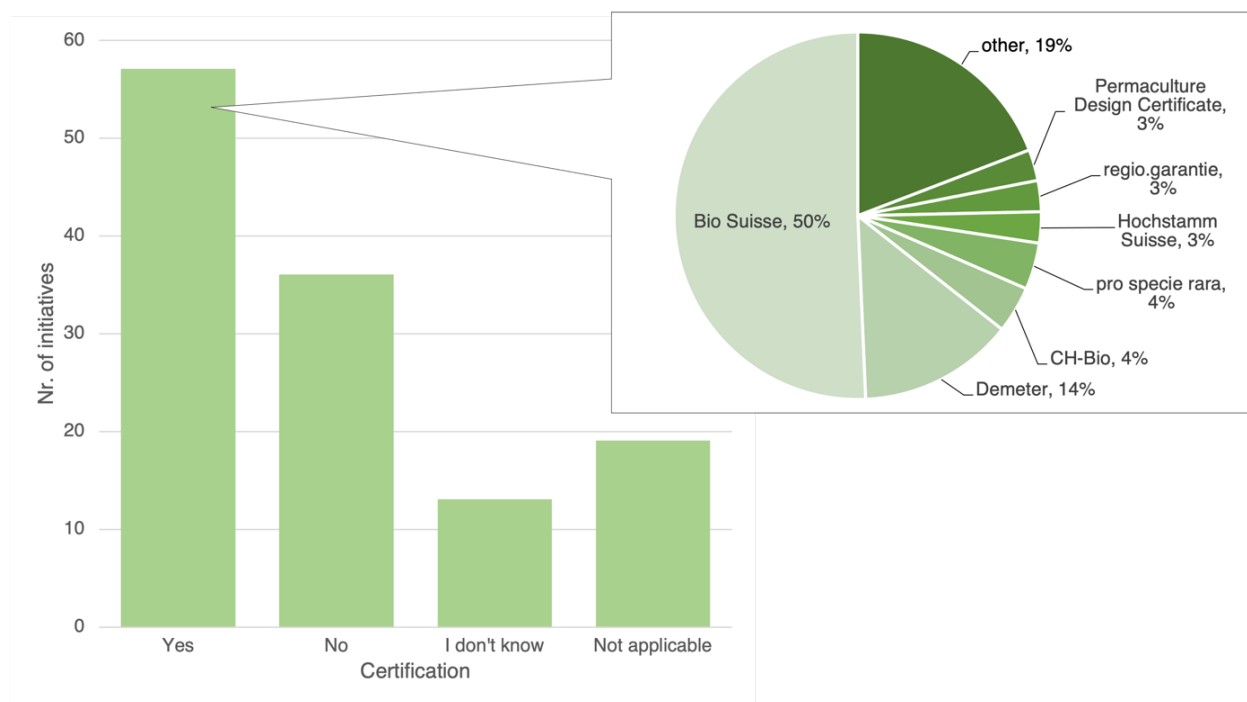


Figure 10: Status of certification of initiatives, with types of certifications indicated on the right. (n=125) The pie chart shows types of certification that were mentioned by at least two initiatives. »Other» contains certification types that were listed only

Agroecological certification?

The discussion around certification of agroecological activity is ongoing. The questions of “what is an agroecological product” or “when is a product agroecological” cannot be answered easily. This uncertainty is used in favor of more regulated forms of food production, specifically organic agriculture, by KI.

No general label for agroecological production exists. For many, the aim is also not to create one, as external certification fundamentally goes against the farmer led advancement of agroecology (Altieri & Holt-Giménez, 2016).

However, there are options to ensure agroecological production without a label. In CSA projects for example, the proximity of consumers to producers ensures quality control (European CSA Research Group, 2016) This is reflected in the data of this thesis, where many CSA projects indicate that the farm they are hosted on may be organically certified, but they themselves are not striving for certification. These projects have decided for themselves that

they do not need (or want) certification to effectively do their work. They set their focus elsewhere, for example on building a close relationship with their customers:

Ideally the customers know the quality of the products and no official label is needed.

We focus on a few, but long-term, trusting relationships with partners who share our basic values.

For others, certification can make sense, especially as the concept of agroecological production is still establishing itself and becoming more known. Two options for farmers to certify their agroecological products are 1) *labels focusing on selected aspects of agroecology* and 2) *Participatory Guarantee Systems* (Wezel, Goette, et al., 2018).

The labeling of specific products with a focus on selected aspects of agroecology is usually conducted through third-party certification (an accredited, independent body) (Veldstra et al., 2014). Examples of this type of certification mentioned in the data include Agricultura Regeneratio (certifying products produced using regenerative practices) (agricultura regeneratio, 2023) and Hochstamm Suisse (certifying products produced in standard tree orchards) (Hochstamm Suisse, 2023).

Participatory Guarantee Systems (PGS) have emerged as an alternative to third-party certification in recent years: They are based on peer-reviews by local stakeholders to ensure quality and can thus be more affordable for small scale producers (Kaufmann et al., 2023; Wezel, Goette, et al., 2018). The presence of PGS in Europe has been increasing in the last years, but no system has been established in Switzerland so far.¹⁵

Criticism of certification in general

A group of initiatives voice critical points about certification in general. Especially the cost of certification stands out as a critique. Other critical points include low flexibility and high administrative efforts. One initiative writes:

For small producers in particular, certification means tying up relatively high resources.

These critical comments on certification are well-reflected in the literature, which discusses the cost of certification, the required paperwork and administrative efforts and complex regulations (Hilbeck et al., 2015; Veldstra et al., 2014). A report on CSA projects describes it as follows:

The rationale for the latter not to be certified includes the facts that the CSA members know the farm and feel they do not need external control, or that the costs of certification are considered too high. Sometimes, an outright rejection of certification out of ideological reasons may also be observed. – (European CSA Research Group, 2016, p. 121)

¹⁵ For an overview of PGS in Europe see https://pgs.ifoam.bio/pgs_groups/map?utf8=√&filter=&status_filter=&country_filter=

4.1.4 Agroecological principles: relevance, barriers and opportunities

All 13 HLPE principles of agroecology are addressed in the interviews through statements that can be attributed to the individual principles. These results do not necessarily describe the key-informants' definition of agroecology, but rather how these 13 principles figure into the discussion around agroecology in Switzerland. Two key-informants mention the 13 HLPE principles in their definition of agroecology. This allusion to the principles in general is not counted in Figure 11, where only specific mentions of each principle are taken into account. The principles are described below in order of most to least frequently mentioned. The results provide information on how each principle factors into the *understanding* of agroecology in Switzerland, as well as the barriers and opportunities related to it.

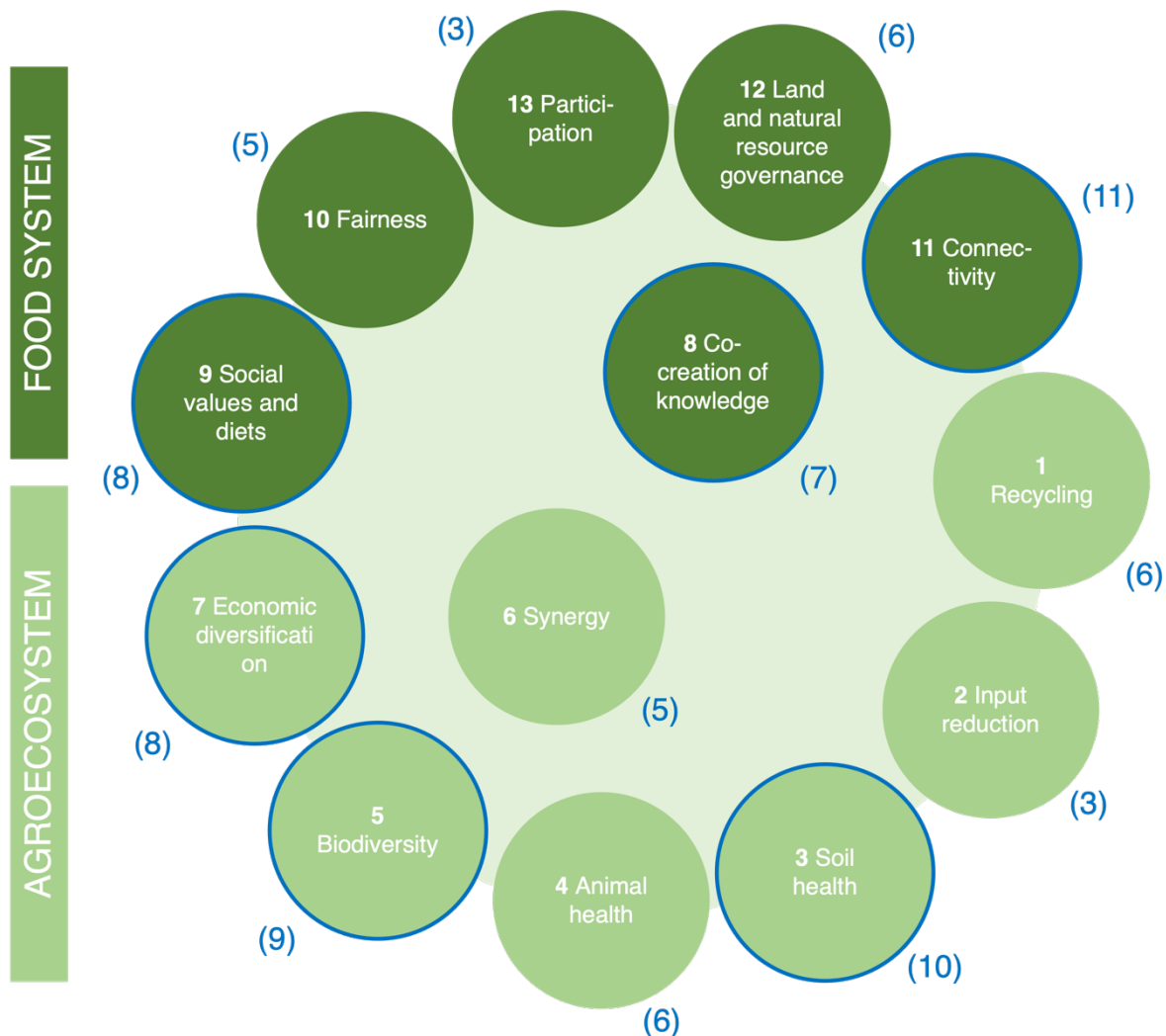


Figure 11: Principles of agroecology (HLPE, 2019). Indicated in blue are the number of KI that talk about the respective principle. Principles outlined in blue are mentioned by at least half of KI.

Connectivity

Connectivity is a core principle of agroecological transformation. This relevance of establishing proximity between producers and consumers is also acknowledged by most key-informants. CSA projects and food cooperatives in particular are perceived as exemplary implementations of this principle. However, several KI also point out that these projects currently constitute a small movement that can only involve a limited number of consumers. More established forms of direct consumer-to-producer connection are farmer's markets and direct marketing channels, both of which are common in organic agriculture in particular. In addition to these direct links from producer to customer, two KI mention gastronomy as an important intermediate step for local food systems.

Various **market mechanisms** are perceived as barriers to this principle: Producers are encouraged to supply long, industrial value chains by the policies that are currently in place. Economic risks can hinder the establishment of new production systems, as the producers' livelihood is directly on the line. Several KI also speak of an already saturated market for sustainable products that is reinforcing this dynamic. According to one KI, the low willingness of many consumers to pay for the additional costs of sustainable production does not allow the application of agroecological methods on a large scale. One KI states that the CSA projects in their area face danger of shutting down if they do not receive more systemic support:

I think it's reaching a point where it's difficult to just grow more in that way. So now I think we need a deeper change in the food system (...). But if that doesn't happen, then all the farms in agroecology will probably stop their activity at some point because it's too hard. – KI 7

The **relationship between producers and consumers** is viewed as both a barrier and an opportunity for agroecology in Switzerland. Several KI describe the lack of understanding of and awareness for food production on the consumers side. For many, food is just not a central issue. According to one KI, this development is tied to emergence of supermarkets, more specifically, the unlinking of production from processing and retail that has been associated with this. Related to this distance between producers and consumers, the polarization between the two parties is also cited as a barrier to more connectivity. As long as farmers perceive society as being strongly prejudiced against them, it is not in their interest to seek out closer connections.

Nevertheless, a majority of key-informants perceive the producer-consumer relationship as an opportunity for the future development of agroecology. According to several KI, both producers and consumers are increasingly aware of the current problems in food production. This shared awareness is providing incentives to produce and consume more ecologically and seek out more local production systems.

Soil health

Practices revolving around soil health are perceived to be among the best established agroecological practices in Switzerland. They include the planting of cover crops or green manure, direct seeding and reduced tillage. The proof of ecological performance (ÖLN) contains requirements on soil cover and erosion control, which is likely why these practices are so universally implemented (BLW, 2022). Many KI agree that the sensitization of farmers to the importance of soil has noticeably increased in the last decades. One KI states:

Climate change, humus depletion, soils that are gradually becoming less productive. (...) farmers are worried and say: "Okay, so our production base, we have to manage it sustainably, because otherwise the next generation will no longer produce anything on these soils." – KI 8

It is worth noting that the input of pollutants into soils, soil compaction and soil erosion are all components of Switzerland's unfulfilled environmental goals (Bundesamt für Landwirtschaft BLW, 2016b). Accordingly, even though soil health factors strongly into the understanding of agroecology, it cannot necessarily be considered a strong point in the state of agroecology in Switzerland.

Biodiversity

Biodiversity is another prominent principle of agroecology for key-informants, who also perceive this principle to factor prominently into the discussion around sustainable agriculture in Switzerland. This is further illustrated by the large proportion of initiatives in the survey that use the term "biodiversity" to describe their activity.

The proof of ecological performance (ÖLN) requires an "appropriate proportion of biodiversity promotion areas (BFF)" (BLW, 2022) and a portion of direct payments is paid out for biodiversity promotion and conservation measures (Bundesamt für Landwirtschaft BLW, 2023a). Nevertheless, the biodiversity-related environmental goals have also not been fulfilled (Bundesamt für Landwirtschaft BLW, 2016b).

According to one KI, the importance of biodiversity may be acknowledged in theory, but measures aiming to increase biodiversity in practice are generally not well-received. The recently announced increase of the required proportion of BFF (to 3.5% of arable land) is an example of this phenomenon (*23.3687 | Verschiebung Der Einführung von 3,5 Prozent Biodiversitätsförderfläche Im Ackerbau Um Ein Jahr | Geschäft | Das Schweizer Parlament, 2023*).

As long as the federal government creates some kind of vision for the future (...) of agricultural and food policy, there is total agreement and biodiversity is important. When it comes to concrete measures, 3.5% on arable land, then it becomes highly problematic. – KI 11

Finally, one KI points out that both soil health and biodiversity are often implied to be the sole focus of agroecology by conventional actors, who then use the term to describe a version of "sustainable agriculture" that is neither holistic nor transformative.

Social values and diets

This principle emphasizes the relevance of "food systems based on the culture, identity, tradition, social and gender equity of local communities" (HLPE, 2019). This importance of regionality and locally adapted food systems is discussed by more than half of KI.

Three explicit examples are mentioned as implementations of this principle: Firstly, one KI cites the collaboration of farmers and local restaurants processing their products in peri-urban areas. Secondly, another KI mentions communities in rural Alpine areas that recognize the significance of local, traditional agricultural practices and come together to preserve them. A third KI talks about the fact that the local origin of food is valued especially in the Romandie. Two KI describe similar characteristics of locally rooted food systems:

For it to work, it has to be very local (...) and it has to be very strongly coordinated regionally. (...) Place specific and community based. – KI 13

It's the knowledge that (...) we have to make local adaptations and that these local adaptations and these local practices can only ever be made in cooperation with local people. – KI 12

The question of locally adapted food systems is also increasingly being considered by policy-makers in the FOAG (Agrarbericht, 2023b). Not discussed by key-informants, but relevant for the principle of social values and diets, is the aspect of social and gender equity of local communities (HLPE, 2019).

Economic diversification

The industrialization of agriculture has led to the establishment of input-intensive, specialized farming systems (Dumont et al., 2022). The diversification of these systems can increase the financial independence of farmers and enable them to better respond to fluctuating consumer demand (HLPE, 2019; Valencia et al., 2019).

Diversified farms are relevant to the understanding of agroecology of more than half of KI. One KI even names the specialization of farms (as in, the focus on one product or one distribution channel) as the strongest barrier for agroecology in Switzerland.

Several barriers to the increased diversification of farming systems in Switzerland are discussed. Two KI point out that the federal agricultural policy continues to **promote large farms and efficiency**. One of them explains:

If you read the new agricultural policy, then you know that it's going to be in the same direction more or less. Some points are interesting, like on food waste or changing the nutrition. (...) But the way to get there, it's more technology and more efficiency. So it means bigger farms and exactly the same process. – KI 7

According to one KI, more diverse farming systems tend to **increase the work load** of the people managing them. The ongoing structural change in agriculture is referred to in this context: As farms are becoming larger, and fewer people are working in the sector, there can simply be a lack of time and resources to maintain diverse systems.

And then, of course, you also have to deal with structural change and economic pressure, which is certainly a major obstacle [for agroecology]. So the trend is still towards larger and larger farms, and that changes the options that farmers have. – KI 4

Path dependency is another barrier to economic diversification: Investments in infrastructure can deter a farmer from making changes to their production system. The income security that comes with established value chains in a generally underpaid sector can be essential. One key-informant says:

For many farmers, this is actually the main problem: How can I make a change and still survive, financially? – KI 4

A promising point in the discussion around economic diversification that is mentioned is that Switzerland's **variety of landscapes** provides the base for a variety of farming systems. The mountainous areas, where conditions have made industrial production impossible, are cited as examples of this: they are largely characterized by small, organic, diversified farming systems. One KI also mentions "microfermes", an emerging movement focusing strongly on diversification. Finally, three KI mention the well-established alternative forms of distribution, such as direct marketing and farmer's markets, that are present particularly in the organic sector.

Co-creation of knowledge

Half of KI talk about the co-creation of knowledge as an essential part of agroecology. The importance of transdisciplinary, practice-centered research for *scientific* innovation is highlighted. At the same time, the creation of *local* innovation by farmers themselves is also perceived to be widespread. The situation is described as follows by one KI:

I know many, many, many farmers (...) who do research. It's almost part of being an organic farmer, doing research, it's almost synonymous. – KI 14

Farmer-to-farmer exchange is central to this principle. One KI describes private courses organized by organic vegetable growers as an example of this: they fulfill a demand for

knowledge that is not always met through the official education institutions and farmers' associations.

Recycling

Even though it is mentioned by almost half of KI, recycling does not take a prominent position in their understanding of agroecology. Nonetheless, two KI point out farmers' increasing awareness of the finiteness of the resources that their daily activity is based on – an awareness, which consequently leads to increased importance attributed to the recycling of those resources.

Now I think there is an awareness everywhere that resources are finite. Or that we have to take care of resources, because otherwise at some point they will no longer be available. – KI 8

Other KI discuss recycling primarily from the viewpoint of organic agriculture: They point out that circularity is an inherent part of organic farming and that the application of organic fertilizer (i.e., manure or compost) is the prime example of closing nutrient cycles on a farm. This can be understood to mean that, while recycling is not central to KI's definition of agroecology, the principle is nonetheless implemented in agroecological practice.

Animal health

This principle includes both animal welfare in general and animal health (as a component of welfare). Neither is a prominent topic in key-informants' understanding of agroecology. This may in part be attributed to the structure of the interview questions, or to the fact that only one KI's activity (a cattle farmer) is closely related to animals in agriculture.

The key-informants that do relate to this principle when talking about agroecological practices describe it as satisfactory overall. The overall state of animal welfare is perceived to be better in Switzerland than in neighboring EU countries by those KI that talk about it. Switzerland's animal welfare regulation is considered the strictest worldwide (Schweizer Tierschutz STS, 2023). The federal animal welfare programs on "particularly animal-friendly housing systems" (BTS) and "regular access to the outdoors" (RAUS) reward efforts in animal welfare that go beyond the minimum requirements of the Animal Welfare Ordinance through financial contributions (BLW, 2023). 65% (BTS), respectively 78% (RAUS) of livestock in Switzerland is kept in accordance with these programs (Agrarbericht, 2023c). The ordinance on maximum stocking density (*Höchstbestandesverordnung*) is mentioned by one KI as another concrete example of a progressive regulation relating to animal health (Agrarbericht, 2023d).

Animal health and welfare are thus topics that have been recognized as important and been improved on for years. This is not to say that this principle can just be ticked off as satisfactory. Animal welfare organizations regularly report on serious shortcomings of animal welfare practices in the country (Schweizer Tierschutz STS, 2023; tier im fokus, 2023).

It is also worth mentioning at this point that animal production significantly contributes to greenhouse gas emissions and livestock numbers in Switzerland need to be reduced to secure long-term food security (Fesenfeld et al., 2023). In the words of one key-informant:

We have to (...) reduce our emissions and for sure reduce and change our animal production. We have too much animal production, that's for sure. – KI 1

Land and natural resource governance

Land governance describes the recognition of "family farmers, smallholders and peasant food producers as sustainable managers and guardians of natural (...) resources" (HLPE, 2019). The federal constitution explicitly states the preservation of rural areas and family farming as objectives of agriculture in Switzerland (Huber, 2022). As two KI point out, this indicates a willingness to promote rural areas through policy in Switzerland – at least in theory.

If you take today's land law, with the family farms (...): if you look from afar, you could say that it supports rural and non-industrial agriculture. – KI 11

However, the **access to agricultural land**, as regulated by the rural land law (BGBB), is perceived as a regulatory barrier to the implementation of this principle. The non-familial acquisition of agricultural land is characterized by high regulatory hurdles (Kleinbauern-Vereinigung, 2023). Only about half of agricultural land is owned by the people cultivating it (Bundesamt für Statistik BFS, 2023). This becomes especially relevant when considering the ongoing structural change and loss of farms in the country (Agrarbericht, 2023a). The following quote illustrates one KI's opinion on why a change in the regulation is important:

Now we're slowly realizing that in modern society (...) there are different ways of living together. Maybe not just families. (...) Even in the family, if you're not predetermined in the line of succession, you don't really have a chance.– KI 10

This principle also entails the governance of **genetic resources** (or seeds) by family farmers, smallholders and peasant food producers. The preservation of the genetic resources in Switzerland is mostly out of farmers' hands and has instead been placed with private and public institutions (Erklärung von Bern EvB & pro specie rara, 2014, p. 8). Swiss law states that “only (...) seed of performance-tested plant varieties is available to farmers for the most important crop species” (Bundesamt für Landwirtschaft BLW, 2023c). The production of propagating material is supervised by the FOAG (Bundesamt für Landwirtschaft BLW, 2023c). Propagation is carried out by specialized farmers producing on behalf of (and under the control of) approved organizations (Bundesamt für Landwirtschaft BLW, 2016a). As a counterpart to conventional channels of seed production, the private organization pro specie rara¹⁶ is mentioned frequently by KI for its contribution to conserving the genetic diversity of cultivated plants (Erklärung von Bern EvB & pro specie rara, 2014, p. 8). Other organizations also contribute strongly to this effort (e.g., Getreidezüchtung Peter Kunz¹⁷, AGFF¹⁸ and Sativa Rheinau¹⁹).

Synergy

The principle of synergy refers to the ecological interactions between elements of an agroecosystem (HLPE, 2019). This principle is not central to KI's understanding of agroecology, but it is alluded to by the mention of agroforestry systems and the benefits of crop rotation. The central role that **soil** plays in the functioning of agroecosystems, as emphasized by one KI, can also be taken as a reference to this principle. They state:

Soil is alive, soil binds CO₂. Soil binds water. It is the basis for plants. Soil life is in close symbiosis with plant growth. Animals live off the soil and revitalize the soil. – KI 2

Notably, this principle is also addressed by **research** on the ecology of agricultural systems (as in the original meaning of the term, which combined ecology and agronomy (Wezel & Soldat, 2009)). In the words of another KI:

As scientists, we try to link (...) ecology with agriculture. So having the natural functioning of the agroecosystem more in the loop. – KI 1

Fairness

The principle of fairness entails “fair trade, fair employment and fair treatment of intellectual property rights” (HLPE, 2019). In the interviews, it is discussed mainly from the perspective of

¹⁶ <https://www.prospecierara.ch>

¹⁷ <https://www.gzpk.ch>

¹⁸ <https://www.agff.ch>

¹⁹ https://www.sativa.bio/de_ch/

fair trade, more specifically **fair prices** for producers. The discussion is closely linked to the price distortion through externalized negative costs in conventional agriculture (Schlöpfer, 2018). Talking about these externalities, one KI states:

Because today you can simply externalize a lot of negative costs, such as the environment and social things, it is possible to produce in this way. If that weren't possible, things would be completely different. – KI 3

The role of **large retailers** is also mentioned as a barrier to fair prices for producers. The margins of the two retail giants Coop and Migros (with a market share of about 35% each (SourceToday, 2021)) are not made public – but there are reports indicating that they are among the highest in Europe (swissinfo.ch, 2017; Zehnder, 2023). Furthermore, the large presence of powerful actors in the retail (and processing) sector stands in the way of closer connections between producers and consumers (Horstink, 2017). One KI sums it up with the following quote:

Through this system that has been built up with the large-scale distributors, or supermarkets per se, many people have simply completely lost their understanding of agriculture. And that's why it's doubly difficult to build structures like that. (...) To bring producers and consumers and everything in between into a cooperative community could lead to better conditions for everyone. – KI 3

Two KI point to the contributions of organic agriculture to this principle: because it is well-recognized and accepted by consumers, the organic label is a form of added value for organic farmers (Niggli, 2000, p. 200).

Fair employment conditions are not discussed by key-informants in this study. However, the precarious working conditions of seasonal workers, interns and apprentices have previously been identified as barriers to the implementation of this principle in Switzerland (Claeys & Van Dyck, 2022; Ekers et al., 2016; Kummer, 2021).

Input reduction

Switzerland's input intensive agricultural system has long since taken a toll on its environment (Meier et al., 2021; Wittmer et al., 2014). To combat these negative effects, the federal government has defined nutrient reduction paths (*Absenkpfade*) (Bundesamt für Landwirtschaft BLW, 2016b, 2023b). A report by the Sustainable Development Solutions Network (SDSN Switzerland) also clearly states that emissions from the Swiss food system need to be reduced to ensure food security (Fesenfeld et al., 2023).

The relevance of input reduction has thus been widely recognized. A possible explanation for the fact that only three KI explicitly talk about this principle is thus that it is simply "too obvious" and most key-informants' definition of agroecology focuses on more transformational aspects of the term.

Participation

This principle "encourages (...) greater participation in decision-making by food producers and consumers" (HLPE, 2019). Switzerland's **federalist system**, where popular initiatives theoretically allow citizens to directly influence policy changes (Huber, 2022), is seen as a good prerequisite for citizens' participation by two KI. Alluding to the fact that these policy processes are often slow, one KI states:

In Switzerland, I have to say, this federalism, the small-scale nature of Switzerland, can sometimes be difficult, but it does help. – KI 13

This **inertia of change** of the Swiss political system is perceived as a barrier to the development of agroecology.

Two KI mention the national **food policy council** (“Citizens' Assembly on Food Policy”²⁰), which is an exemplification of both the increased participation of citizens *and* the inertia of change of the system. The process was organized by civil society organizations and academics and accompanied by the state (FOAG, FOEN and FSVO) (Bürger:innenrat für Ernährungspolitik, 2022a). Its realization received mixed reactions, with the SFU in particular doubting its purpose (Schuller, 2022). The question of who should have how much say in the Swiss democracy is thus a contested one (Amos, 2023).

A few powerful players strongly influence opinion forming in the Swiss agri-food sector (Huber, 2022). Their **lobbying interests** disproportionately affect the creation of agricultural policies and thus the daily lives of farmers (and citizens) in Switzerland. A lot of potential for the development of agroecology may thus lie in the better implementation of the principle of participation.

4.1.5 Levels of transformation

Understanding of KI

As observed in the previous section, most level 1 and 2 principles (*soil health, biodiversity, economic diversification, animal health, recycling, synergies*) feature strongly in the discussion around agroecology in Switzerland. The *co-creation of knowledge*, which can be understood to form part of level 3, is deemed important by many KI. *Connectivity* as well as *social values and diets*, both relevant to the producer-consumer connection of level 4, are also very commonly discussed. The principles related to level 5 (*participation, fairness, land and natural resource governance*) receive the least attention in the discussion with KI.

Agroecological initiatives

Figure 12 places 517 of the agroecological initiatives collected for this thesis along the levels of transformation (Gliessman, 2016b). No level 1 initiatives are part of the database. Level 2 initiatives are most common, followed by level 4. About a fifth of total initiatives are placed in level 3. A very small proportion are level 5 initiatives.

The distribution can be attributed in part to the study design and desktop research process of this thesis. As the mention of both agroecosystem and food system principles was a criterium for initiative selection, initiatives dealing strictly with **level 1** topics were not included in the database. **Level 2** initiatives include mainly organic producers and stores, food processors and research groups working on alternative agricultural practices. **Level 3** includes permaculture projects, microfarms, urban agriculture projects, agroforestry and initiatives working on traditional varieties. **Level 4** unites CSA projects, cooperatives, ecovillages, farmer’s markets and restaurants. The initiatives on **level 5** work on food security, food sovereignty or take a global food system view.

As mentioned above, the placement of initiatives into one of five categories is not a perfect representation of their activities, as the levels of transformation often overlap. However, a strict classification was undertaken based on the knowledge available on the initiatives.

²⁰ A **food policy council** is a process which enables citizens to influence food policy by directly participating in the decision-making process. See [Amos \(2023\)](#) for a detailed case study on how the Citizens' Assembly on Food Policy was embedded in the wider political and social environment in Switzerland.

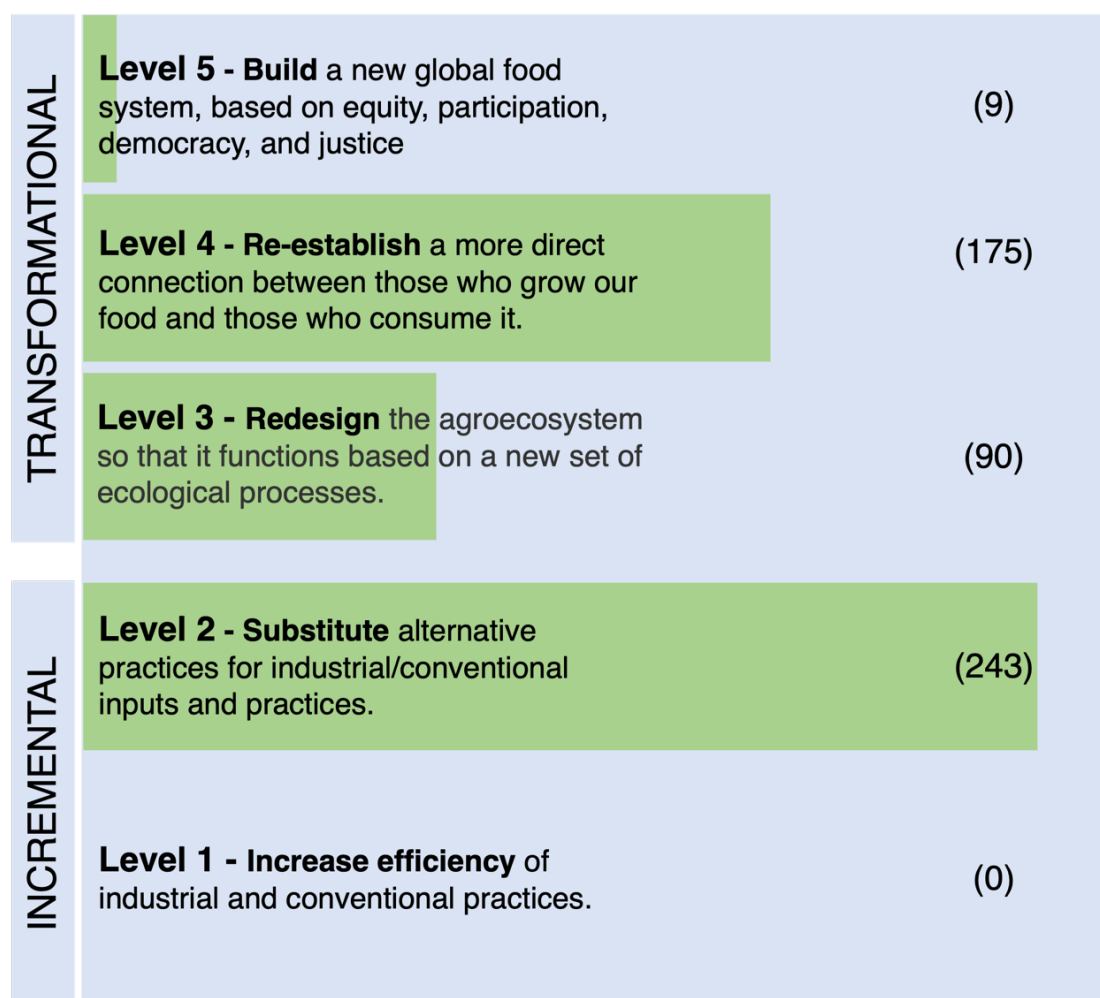


Figure 12: Categorization of initiatives in the database according to levels of transformation (Gliessman, 2016)

The image presenting itself in the initiatives in Figure 12 likely does not accurately represent the whole of Switzerland's agricultural system. The following quote by one KI sums up the views expressed in the interviews on agriculture in general in Switzerland:

But I think generally in agriculture, if we look at these levels of Gliessman, we are more at the "input substitution" level, partly "redesign". – KI 4

4.2 Temporal development of agroecology

This chapter describes the development of agroecology in Switzerland based on a timeline of key-events and milestones, the development of policy related to agroecology, and the dates of establishment of initiatives in the online survey.

4.2.1 Timeline

Table 5 lists events and milestones relevant to the development of agroecology in Switzerland. The entries either emerged during the literature and desktop research or were mentioned by key-informants during the interviews.

Table 5: Timeline of events and milestones related to agroecology in Switzerland

Category ²¹	Type	Year	Description
m	Movement	1951	Uniterre is founded (then "Union des Producteurs Suisses (UPS)") (Uniterre, 2023)
s	Research	1973	Research Institute for Organic Agriculture (FiBL) is founded (FiBL, 2019)
s	Research	1974	FiBL becomes the 10th member of IFOAM, the International Federation of Organic Agriculture Movements (FiBL, 2019)
m	Farm	1978	First CSA in Switzerland ("Agriculture contractuelle") is founded: "Les jardins de Cocagne" in the canton of Geneva (Dyttrich, 2009; Les Jardins de Cocagne, 2023)
p	Organic	1980	FiBL Knospe (bud) becomes Swiss organic label (FiBL, 2019)
p	Organic	1981	Bio Suisse is founded (then «Vereinigung Schweizerischer Biologischer Landbauorganisationen (VSBLO)») (Bio Suisse, 2023a)
m	Policy/law	1992	Organic farming is included in the federal agricultural policy as a form of production worthy of support (Bio Suisse, 2023a).
p	Organic	1993	Coop Naturaplan label established (organically certified products sold in chain supermarket) (Coop, 2023)
m	Policy/law	1993	Direct payments to compensate for public and environmental services come into force (BLW, 2009)
p	Farming related program	1993	Subsidy program for animals with regular outdoor access: RAUS (Regelmässiger Auslauf im Freien) (BLW, 2023)
m	Movement	1993	Slow Food Switzerland is founded (Slow Food Schweiz, 2023)
p	Organic	1995	Migros starts selling organic certified products (Migros, 2023)
s	Research	1996	Agroscope Reckenholz is renamed "Forschungsanstalt für Agrarökologie und Landbau (FAL)" (Agroscope, 2023)
p	Farming related program	1996	Ecological Proof of Performance (ÖLN) introduced as prerequisite to direct payments (BLW, 2009)
p	Farming related program	1996	Subsidy program for «particularly animal-friendly livestock housing»: BTS (Besonders tierfreundliche Stallhaltung) (BLW, 2023)
p	Organic	1998	bio.inspecta is founded for third-party, independent control and certification of organic products (bio.inspecta, 2023)
e	Education and training	2005	First graduating class of Bio Suisse pilot course for farmers specializing in organic farming (Bio Suisse, 2023a)
p	Organic	2008	10% of Swiss farms are certified organic according to Bio Suisse guidelines (Bio Suisse, 2023a)
m	Policy/law	2011	The canton of Vaud implements a law on agroecology (Règlement sur l'agroécologie (RAgrEco)) as part of its cantonal agricultural law (RÈGLEMENT sur l'agroécologie, 2011).
p	Organic	2015	Antenne Romande: branch of the BioSuisse office opened in Lausanne (Bio Suisse, 2023a)
p	Farming related program	2017	InterReg projects: Agroecology on the Upper Rhine (Agrarökologie am Oberrhein, 2023)

²¹ Activity categories: e – education, m – movement, p – practice, s – science, l – living lab

p	Farming related program	2019	Ressource project PestiRed focusing on reducing plant protection products (PestiRed, 2023)
m	Event	2019	7th edition of the Origin, Diversity and Territories Forum takes place in Lausanne, VD (Origin Diversity Territories, 2019)
l	Living lab	2020	"Klimaschutz durch Humusaufbau" project initiated in the cantons Basel-Stadt and Basel-Landschaft (Ebenrain, 2023)
s	Academia	2020	ZHAW introduces a major in Agroecology and Food Systems as part of the MSc in Environment and Natural Resources (ZHAW, 2023)
p	Farming related program	2020	Area code 725 for direct payments: "small-scale mix of different crops with more than 50% specialty crops" for permaculture (Agridpedia, 2022)
p	Farming related program	2020	Federal resource project Agro4esterie for the development of agroforestry systems (agroforst.ch, 2020)
l	Living lab	2021	Climate neutral agriculture project initiated in the canton Graubünden ("Klimaneutrale Landwirtschaft Graubünden") (Klimaneutrale Landwirtschaft Graubünden, 2023b)
l	Living lab	2021	"Technikum Urbane Agrarökologie" is founded (Technikum Urbane Agrarökologie, 2023)
m	Policy/law	2021	A national petition to support agroecology (Agrarökologie fördern) gets 5000 signatures (Agroecology Works!, 2021).
m	Event	2021	Days of Agroecology are organized for the first time (Agroecology Works!, 2023).
s	Research	2021	Research Group "Agroecological Transitions (AET)" established at ETHZ (limited in time until 2026) (ETH Zürich, 2023)
s	Research	2021	Master thesis: "Agroecology in Switzerland" at ZHAW (Kummer, 2021)
s	Event	2021	Agroecology conference at the University of Lausanne (Université de Lausanne, 2021)
l	Living lab	2021	FiBL becomes a member of European Network of Living Labs (ENoLL) (Research Institute of Organic Agriculture FiBL, 2021).
m	Policy/law	2021	Canton of Ticino incorporates the concept of "food sovereignty" into its constitution (<i>sovranià alimentare del Canton Ticino</i>) (Repubblica e Cantone Ticino, 2018).
m	Event	2021	9th edition of the Origin, Diversity and Territories Forum takes place in Valposchiavo, GR (Origin Diversity Territories, 2022)
m	Policy/law	2021	Biovision Foundation launches a project to showcase agroecological initiatives (Biovision, 2023).
e	Event	2021	Lecture Series organized by the World Food System Center (WFSC) of ETHZ: Agroecology and the Transition to Sustainable Food Systems (World Food System Center, 2023)
m	Policy/law	2022	A food policy council (Bürger:innenrat für Ernährungspolitik) formulates recommendations for Switzerland's agri-food policy (Bürger:innenrat für Ernährungspolitik, 2022b)
m	Policy/law	2022	Canton of Geneva passes a law on the "right to food" (<i>Droit à l'alimentation</i>) (Les Vert.e.s Genève, 2023)
p	Farming related program	2023	Subsidies for pasture-based livestock farming ("Weidebeitrag") are introduced as a direct payment for animal welfare (BLW, 2023).
m	Policy/law	2023	City of Biel/Bienne starts local food kitchen as part of its climate strategy (Stadt Biel / Ville de Bienne, 2020).
m	Policy/law	2023	Agroecology mentioned in federal Climate Strategy Agriculture and Food (<i>Klimastrategie Landwirtschaft Und Ernährung 2050</i> , 2023)

4.2.2 Initiatives' date of establishment

Figure 13 shows the time periods that the initiatives were established. Two initiatives did not respond to this question. Thirteen out of 123 initiatives were established before 2001. A steady increase in new initiatives can be observed since then, with a leap after 2015. More than half of initiatives were established in the time period since 2016. The oldest initiatives in the survey are a biodynamic practice initiative founded in 1937, and two initiatives in the social movement founded in 1948 and 1978, respectively. The first living lab in the survey was established in 2001.

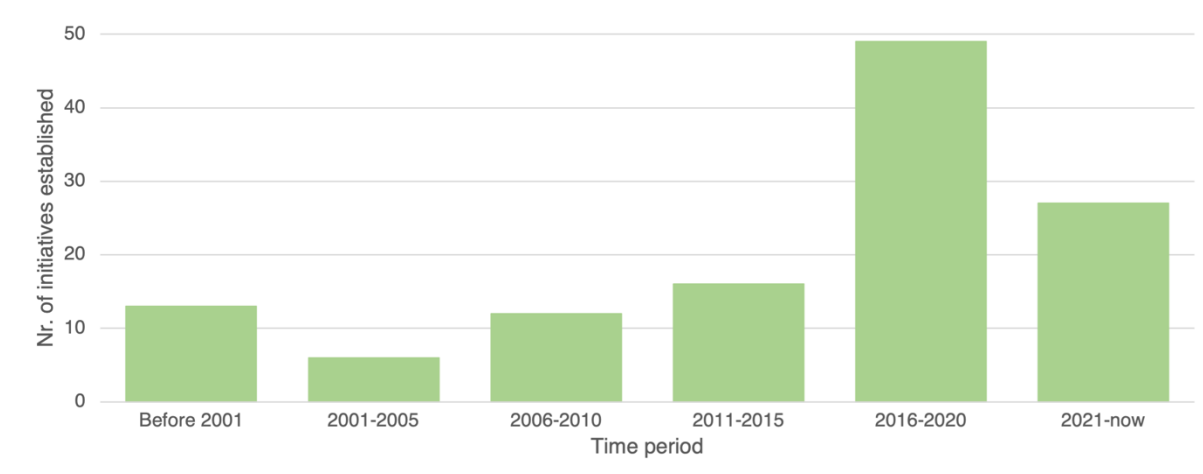


Figure 13: Date of establishment of initiatives in the online survey

Table 6 further illustrates when the initiatives in each main category were founded. Almost half of total initiatives in the categories practice, education and training as well as living labs were established in the time period from 2016 – 2020. The pattern is less clear for the social movement, where the time of establishment is more evenly distributed, with about a third established between 2016 and 2020. For science, almost half the initiatives were established in that time period, but with only five initiatives in the survey, it is difficult to make a general statement.

Table 6: Number of initiatives established in each time period according to main activity category

	before 2001	2001-2005	2006-2010	2011-2015	2016-2020	2021-now	Total
Science	1	0	0	0	2	2	5
Practice	7	0	6	10	27	10	60
Social movement	4	4	4	5	10	8	35
Education and training	1	0	1	1	5	3	11
Living lab	0	2	1	0	5	4	12
Total	13	6	12	16	49	27	123

4.2.3 Policies for agroecology

This chapter outlines how existing policy documents and instruments relate to agroecology in the perception of key-informants. In addition, it explores the understanding of agroecology that is exhibited in these documents and how they contribute to the agroecological transition.

Agroecology is not perceived as generally well-recognized at the decision maker level. A variety of policy instruments on the national, regional and local level help the implementation of **aspects** of agroecology, but very few of them are specifically focused on agroecology. The decision making stakeholders perceived as most relevant are those on the federal level: the Federal Office of Agriculture (FOAG), the federal administration and politicians in national parliament.

One KI categorizes the term agroecology as *very well recognized* and describes it as a trend in agricultural policy. However, they also point out that the understanding of agroecology by decision makers is usually an efficiency-focused one:

When I look at politics and the federal research institutes, everyone is talking about agroecology. (...) The understanding behind it, I think, is above all an understanding that focuses on efficiency. – KI 12

For the others, the main reason why agroecology is categorized as *not recognized* is that it is so far not used as a target system for policy decisions. According to KI, if agroecology is cited, it is not in a comprehensive way. Instead, there is either a focus on its technical aspects, or a showcasing of individual examples, while still focusing on efficiency and large-scale farms overall. The overall perception is that there is so far no explicit commitment to this approach on the federal level. One KI says:

Nowhere do I see the agroecological system behind a coherent, comprehensive policy. – KI 2

Instead, according to several key-informants, it is often individual people in administrative roles and small niches in the national agricultural policy that allow for agroecological innovation.

Explicit mention of agroecology in policy documents

The archive of the Swiss national parliament lists 24 entries with the key-word “agroecology”, including fourteen interpellations from members of parliament to the Federal Council.²² In its response to a 2014 interpellation, the Federal Council exhibits an understanding of agroecology primarily based on ecological aspects.

*Agroecology deals in the broadest sense with **the interactions between agricultural production and the affected ecosystems**. Research in the field of agroecology focuses on the sustainable development of all agricultural systems (e.g. integrated and organic production) while making optimum use of ecosystem services and conserving natural resources. (Federal Council, 2014)*

In 2021, a petition to promote agroecology was submitted by the organization Agroecology Works! (Agroecology Works!, 2021). This time, in its response, the Federal Council recognized “the importance of agroecology as a crucial approach for a change towards a sustainable food system” (Biovision, 2022). The mention of food systems by the Federal Council underlines the perception of several KI, that the FOAG is also starting to implement the concept of “food systems” into its policy approach.

Food system thinking

Kummer (2021) identified the importance of system-thinking in agroecological policies for Switzerland’s agroecological transition. To achieve the goal of ecological, economic and social sustainability that a transformative agroecology pursues, a focus on the whole food system becomes indispensable (Gliessman, 2015). Agroecology’s aim to transform food systems, rather than adapt them to the current industrial system is a point that is reinforced by KI in this thesis.

²² <https://www.parlament.ch/de/ratsbetrieb/suche-curia-vista#k=Agrarökologie>

A switch towards more support of small-scale, knowledge-intensive farming has been identified as an important action point to promote the transition towards agroecology in Europe (Wezel, Goris, et al., 2018). However, KI point out that the current agricultural policy still strongly promotes a system based on large-scale, input-intensive farms.

A report outlining the 2050 vision for the Swiss food system was the first **federal** policy document to adopt a holistic understanding of agroecology and food systems. The report was published in response to two postulates on the future orientation of agricultural policy and illustrates how agroecology has made its way into the awareness of policy makers on a national level.

The concept of agroecology is an important approach to support a holistic transformation towards more sustainable food systems. (Federal Council, 2022a, p. 67)

The *2050 Climate Strategy for Agriculture and Food* expands on this report. The strategy is being “used for the short- and medium-term development of policies relating to the food system” (Bundesamt für Landwirtschaft BLW, 2023f). It was developed by the FOAG in conjunction with the Federal Office for Food Safety and Veterinary Affairs (FOSV) and the Federal Office for the Environment (FOEN) – a collaboration which hints at a broad view of the problems it is addressing. The document acknowledges the approach’s holistic nature and mentions the 13 principles of agroecology.

Agroecology is based on social, cultural, political, economic and ecological principles and is seen as a decisive approach for achieving the transformation towards more sustainable food systems. – (Klimastrategie Landwirtschaft und Ernährung 2050, 2023, p. 17)

The measures it outlines aim to reduce greenhouse gas emissions from agriculture and to help agriculture adapt to climate change (*Klimastrategie Landwirtschaft Und Ernährung 2050*, 2023). However, it still focuses strongly on technical solutions in agriculture instead of taking a food system perspective, which would include processors, retailers and consumers (Vision Landwirtschaft et al., 2023).

Moving away from the federal to a **cantonal** level, in Vaud, a *regulation on agroecology* (“*réglement sur l’agroécologie*”) was adopted in 2011, which regulates cantonal subsidies for agri-environmental measures (Agroecology Info Pool, 2018; Loi sur l’agriculture vaudoise, 2011). It lays down the following principle of agroecology:

*The government promotes **environmentally-friendly agriculture**. Its action is aimed at reducing the burden on the environment, using natural resources and energy sustainably, and improving ecological quality in agriculture. (Loi sur l’agriculture vaudoise, 2011)*

From this definition, a focus on ecological aspects of sustainability is evident. Accordingly, the law focuses on measures for biodiversity, soil health and landscape diversity. Notably, though, it also mentions collective action and the conservation of cultural heritage (Agroecology Info Pool, 2018; Loi sur l’agriculture vaudoise, 2011).

Policies implementing aspects of agroecology

There are various other policies that help the implementation of agroecology but do not focus *specifically* on agroecology or mention the term.

National policy

Projects for Regional Development (PRE) provide monetary support to projects “promoting value creation in agriculture and regional cooperation” (Bundesamt für Landwirtschaft BLW,

2023d). Their primary goal (value creation) is thus economic, but projects are encouraged to pursue ecological, social or cultural goals as well (Bundesamt für Landwirtschaft BLW, 2023d). There is one key informant who describes the PRE as “not connected to any agroecological principles” because of their strong focus on economic value creation and its lack of ecological requirements. In contrast, two KI stress the relevance of projects in mountainous areas as particular examples of how PRE can contribute to agroecological transformation.

It is always about the production of locally adapted primary products. (...) to differentiate ourselves as non-industrial production, so to speak. And in regional development projects, it's mostly about adding value to this production locally. – KI 8

Because they focus on the strengthening of local inter-farm and cross-sectoral networks (Flury et al., 2017), PRE can be said to contribute to the agroecological principles of *connectivity* and *social values and diets*.

Three KI describe **federal resource projects** as another “policy niche” that can be used for agroecological purposes, even though they were not designed with agroecology in mind. With these projects, the federal government “promotes the improvement of sustainable use of natural resources in agriculture” (Bundesamt für Landwirtschaft BLW, 2023e). One project in particular is highlighted as agroecological: “Agro4esterie” is investigating benefits of and best-practices for agroforestry systems in Switzerland (agroforst.ch, 2020). Resource programs are practice-focused and can thus be placed on levels 1-3 of transformation (Gliessman, 2016b). The Agro4esterie project in particular implements a redesign of agroecosystems (Level 3) and implements the principles of *synergy* and *economic diversification*.

The **ordinance on organic farming** (SR 910.18), which regulates the production and processing of organic products in Switzerland, is another federal policy instrument implementing aspects of agroecology. It addresses the principles of *recycling*, *animal health*, *input reduction* and *synergy* from an agroecosystem standpoint and can thus be located on levels 1-3 of transformation (Gliessman, 2016b).

Regional policy

Three KI mention policies on a regional level. Besides the law on agroecology in the canton Vaud discussed above, the “right to food” in the canton Geneva and Interreg projects as a form of interregional cooperation are discussed.

The Canton Geneva introduced a **right to food** (“*droit à l'alimentation*”) in 2021, which states that “every person has the right to adequate food, as well as the right to be free from hunger” (Les Vert.e.s Genève, 2023). A right to food implies that food needs to be “available, accessible and adequate” (De Schutter, 2010). The introduction of such a right is thus a step towards the implementation of the principles of *economic diversification*, *social values and diets*, *connectivity*, *fairness* and *participation*. It entails level 4 transformational changes (connecting consumers and producers) and hints at level 5 transformation.

Not mentioned by KI but also relevant in this regional context is the canton Ticino, who included the principle of **food sovereignty** in its constitution in 2021 (Repubblica e Cantone Ticino, 2018). While this policy does not explicitly mention agroecology, the concept of food sovereignty is central to the social movement for an agroecological transition (International Forum for Agroecology, 2015).

Lastly, **Interreg projects** are a form of regional, cross-border cooperation between Switzerland and neighboring EU-countries (Bundesamt für Raumentwicklung ARE, 2023). In

the current funding period 2021 – 2027 (Interreg VI), only two projects stand out for their contribution to agroecology: The first focuses on sustaining **high-stem orchards** through increased valorization of their products in Western Switzerland (Interreg France-Suisse, 2023). This project addresses the principles of *biodiversity*, *fairness*, *connectivity* and *economic diversification*. It can be located on levels 3 and 4 of transformation. The second project investigates strategies to adapt **arable farming systems** to climate change (Interreg Oberrhein, 2023). This project can be located on level 2 of transformation as it focuses mostly on *input reduction* in existing agroecosystems. Both of these projects also involve the *co-creation of knowledge* (between farmers, advisory services and researchers). In the past, selected projects have also focused on food cultural heritage (Interreg Alpine Space, 2021) and various agroecological production methods (Agrarökologie am Oberrhein, 2023). However, Interreg projects are definitely not a policy instrument strongly supporting the implementation of agroecology overall.

Local policy

On a local level, the **climate strategies** of selected cities and communities stand out to key-informants. A concrete example is the climate-strategy of the city of **Biel**, whose implementation included the establishment of a communal kitchen using only products from the city's immediate surroundings (Stadt Biel / Ville de Bienne, 2020). Another example is **Winterthur**, mentioned by one KI because it has integrated both agriculture and nutrition into its climate strategy (Bürgerpanel Winterthur, 2022).

Even though they do not mention agroecology or follow the systemic goal of food system transformation, these local strategies are perceived to be a stronger implementation of agroecology than the national policy instruments. Judging by the statements of the two KI that talk about them, this is because 1) they have existed for longer and already translated into concrete policy instruments and they are more likely to 2) take a food system perspective and 3) promote local value chains and producer-consumer connections.

Direct payments and proof of ecological performance

Direct payments in Switzerland are linked to the multifunctionality of agriculture, as defined in Art. 104 of the federal constitution (Huber, 2022). State subsidies are tied to food security, ecological and landscape conservation goals (Huber, 2022). Two KI describe the direct payment system as *generally* agroecological, due to the fact that it includes ecological considerations and is not strictly focused on productivity. Most other key-informants only refer to *aspects* of the direct payment system as agroecological.

The **proof of ecological performance (ÖLN)** is most frequently mentioned as an implementation of agroecology. The ÖLN as a prerequisite to receiving direct payments defines minimum requirements on crop rotation, measures against soil erosion (soil cover), closed nutrient cycles and biodiversity (BLW, 2022). It is often cited as a milestone for the sustainable development of Swiss agriculture. However, the ongoing negative environmental impact of the agricultural system (Gubler et al., 2020; Knop et al., 2005; Schläpfer, 2018) and the unfulfilled environmental targets (Bundesamt für Landwirtschaft BLW, 2016b) indicate that the ÖLN is a story of mixed success. Moreover, with its focus on ecological sustainability, the proof of ecological performance can be located on levels 1 and 2 of transformation (Gliessman, 2016b). So while it is certainly an important contribution, it is far from being a coherent instrument for an agroecological transformation.

Further, direct payments for permaculture and agroforestry systems are discussed. An area code for the "small-scale mix of different crops with more than 50% specialty crops" was introduced in 2021, under which **permaculture** systems can be registered for direct payments (Agripedia, 2022). The only **agroforestry** system that is currently compensated with direct payments are standard tree orchards, which have a rich history in Switzerland (Kaeser et al.,

2011). The addition of further subsidies for agroforestry systems will depend on the outcome of the resource program “Agro4esterie” (agroforst.ch, 2020; Federal Council, 2023). Both permaculture and agroforestry are a fundamental redesign of the agroecosystem and thus contribute to level 3 transformation.

Kummer (2021) emphasized the importance of system-thinking for the development of agroecological policies – a point that is reinforced by KI in this thesis. Despite the various policies listed in this chapter, there is so far an absence of a broad-based political framework for agroecology in Switzerland. The following chapter examines the extent to which agroecological activity is already happening in this policy context.

4.3 State of the five activity categories in Switzerland

This chapter describes the state of agroecology in Switzerland. It is based on data from the 14 key-informant interviews and desktop research that has been sorted into the five activity categories (Figure 14). Initiatives mentioned by more than one key-informant are listed in a table at the end of the respective sections. These tables are not meant to represent an exhaustive list of initiatives in Switzerland but showcase the diversity of ongoing activity. Quotes are attributed to key-informants using “KI” and the respective number assigned to them in Table 3.



Figure 14: Activity categories of agroecology

4.3.1 Science

Most key-informants have the perception that agroecology is a topic that is present at research institutions in Switzerland. One states:

Especially in the field of research, agroecology is of course a common term. – KI 6

The most commonly mentioned research institutions are the Federal Institute of Technology Zurich (ETHZ), the Research Institute of Organic Agriculture (FiBL) and Zurich University of Applied Sciences (ZHAW). The FiBL in particular is highlighted for having shaped agroecological research in Switzerland. Agroscope (the federal center for agricultural research) and the School of Agricultural, Forest and Food Sciences at Bern University of Applied Sciences (BFH-HAFL) also come up, but often only because of their status as agricultural research facilities and without reference to a specific research topic or group. Overall, few key-informants outside of the activity category of science can name specific courses, researchers or research topics.

When looking at **tertiary education**, Swiss higher education institutions offer no bachelor’s or master’s degrees in agroecology. A non-exhaustive list of degrees that incorporate aspects of agroecology can be found in Table 7.

Table 7: Degrees at Swiss higher education institutions covering aspects of agroecology and/or that mention agroecology in their description

Higher education institution	Degree	Agroecology related course(s)
ZHAW	MSc Environment and Natural Resources	Major in Agroecology and Food Systems
ETHZ	BSc Agricultural Sciences	Sustainable Agroecosystems (Lecture)
	MSc Agricultural Sciences	Minor in Sustainable Agricultural Development Political Ecology of Food and Agriculture (Seminar)
BFH-HAFL	BSc Agriculture	Minor in Climate Change
	MSc Life Sciences - Agricultural Sciences	Major in Sustainable Production Systems
University of Basel	MSc Sustainable Development	Introduction to Organic Farming Systems (Lecture)
	MSc Plant Sciences	Sustainable Plant Systems (Lecture)
University of Bern	MSc Sustainability Transformations	Minor in Sustainable Development
University of Lausanne	BSc Geosciences	Political ecology (Seminar)
	MA Foundations and Practices of Sustainability	Agroforestry and permaculture (Lecture)

Table 8: Agroecological initiatives in the activity category “science”

Initiative	Description	Location (canton)
Agroscope	Swiss federal research center for agricultural research	CH
ALLready	European Agroecology Living Lab and Research Infrastructure Network	CH
ETHZ Agroecological Transitions	Research group at the federal institute of technology in Zurich	ZH
ETHZ Sustainable Agroecosystems	Research group at the federal institute of technology in Zurich	ZH
FiBL	Research institute for organic agriculture	AG
HAFL	University of applied sciences Bern, School of Agricultural, Forest and Food Sciences	BE
SDSN	Non-profit launched by the United Nations in 2012 to promote the implementation of the UN Sustainable Development Goals	CH
University of Bern CDE	Center for Development and Environment at the University of Bern, research on sustainable development	BE
UNIL Institute of Geography and Sustainability	Research institute at the University of Lausanne	VD

ZHAW Geography of Food	Research group at Zurich University of Applied Sciences	ZH
ZHAW Organic Agriculture	Research institute at Zurich University of Applied Sciences	ZH

4.3.2 Social movement

Key-informants agree that the social movement for agroecology is not yet very present on a large scale, well-organized or well-connected. Instead, there are individual (sometimes small) organizations working very actively on the topic.

And it's not like we already have a mega strong, lively movement in the whole of Switzerland (...) – KI 9

The two most prominent actors of the social movement are the associations Agroecology Works! and Uniterre²³– both are mentioned by eight KI. Further **actors** that are very present are Community Supported Agriculture projects (CSA; *Solidarische Landwirtschaft, Agriculture contractuelle*), which come up in all key-informant interviews. (Peri-)urban areas in particular are highlighted for their density of CSA projects.

Key-informants perceive three **topics** to be most relevant for the social movement in Switzerland: Firstly, **trade**, which includes questions of true costs and fair prices for producers and the establishment of regional value chains and direct marketing channels. Secondly, **peasant rights** are considered central for the social movement around agroecology. Finally, the importance of building **networks** to strengthen a movement also comes up in several conversations. One key-informant states:

We have to showcase, we have to pilot, we have to onboard and we have to think about all these different levels, very local levels and more Swiss levels. – KI 1

Table 9: Agroecological initiatives in the activity category "social movement"

Initiative	Description	Location (canton)
Agroecology Works!	Swiss network for agroecology that is connecting actors across the country and campaigning for food system transformation	ZH
Biovision	Foundation working on a sustainable food system in Sub-saharan Africa and Switzerland with a focus on knowledge transfer	ZH
Bürger:innenrat für Ernährungspolitik	Food policy council that developed recommendations for Switzerland's future federal agri-food policy in 2022 ²⁴	CH
Kleinbauernvereinigung	Farmers' organization representing the interests of small farmers in Switzerland and campaigning for peasant agriculture	CH
Koopernikus	Cooperative network of producers, restaurants, consumers etc. in the Zurich area; direct marketing online platform for local product	ZH

²³ Note: Agroecology Works! is a Swiss-wide network and Uniterre is one of its members.

²⁴ The food policy council was a six-months long part of the project Ernährungszukunft Schweiz (*food future Switzerland*) (Ernährungszukunft Schweiz, 2023). After developing and handing over the recommendations, the initiative does not exist as such anymore. (Bürger:innenrat für Ernährungspolitik, 2022a)

Landwirtschaft mit Zukunft	Association lobbying for food system transformation; co-organizers of food policy council (Bürger:innenrat für Ernährungspolitik)	ZH
meh als gmües	Cooperative, vegetable producing CSA	ZH
ortoloco	Cooperative, CSA	ZH
Slow Food Schweiz	Association working on strengthening local food culture, healthy and fair food choices	CH
Uniterre	Organization working for food security and peasant agriculture; Swiss branch of La Via Campesina ²⁵	CH

4.3.3 Practice

Key-informants unanimously agree that there are agroecological practices implemented in Switzerland. Opinions vary on how well-implemented they already are: while some KI describe practices that are almost universally applied, other KI only list practices that are still uncommon. However, KI agree that agroecology is not a well-known concept among practitioners and all of the practices discussed are usually not referred to as “agroecological”. One KI describes the situation as follows:

It is known and it is also applied because it is also known to bring benefits. It's not primarily about agroecology, it's about making it economically worthwhile in the end.
– KI 8

Practices that are discussed most often as agroecological are agroforestry, (organic) plant protection measures, crop rotation, various soil related practices and aspects of animal production.

Crop rotation is a prerequisite for direct payments and thus seen as very well-implemented in Switzerland. **Soil related practices** are also perceived to be a well-implemented form of agroecological practices in Switzerland and discussed in more detail in Chapter 4.1.4 – *Soil health*. Organic **plant protection** measures are well-implemented not only by organically certified producers, but, according to two KI, also by conventional farmers. Beneficial insects in particular are mentioned several times as an agroecological plant protection measure. Several KI state that it is becoming more common for farmers to incorporate some form of **agroforestry** into their production systems. Specifically mentioned are silvoarable alley cropping systems and fodder hedges (*Futterhecken*). Standard tree orchards (*Hochstammanlagen*), another agroforestry system, used to be a common sight in Switzerland but have largely disappeared in the past decades during the industrialization of agriculture (Kaeser et al., 2011).

The most commonly named agroecological approach is organic agriculture. Seven KI explicitly name organic practices when asked about agroecological practices. Four KI mention integrated production (IP) as an approach implementing basic agroecological elements such as biodiversity requirements and the use of organic plant protection measures. One KI each names microfarms, permaculture and regenerative agriculture as agroecological farming approaches.

Organic agriculture in particular is described as a holistic (*gesamtbetrieblich*) approach to sustainable farming and thus a strong implementation of agroecological practice. There are cities/communities that only lease their agricultural land on the condition that it is farmed

²⁵ La Via Campesina (founded in 1993) was one of the first movements embracing the concept of agroecology. Today, the NGO is represented by local branches in many countries worldwide. (La Via Campesina, 2023)

according to organic standards (concrete examples mentioned are the city of Zurich and the canton of Neuchâtel). The canton of Graubünden stands out in the interviews for its high percentage of organic farmers. The canton is also home to the Poschiavo valley that is in the process of converting 100% of its farmland to organic.

Table 10: Agroecological initiatives in the activity category "practice"

Initiative	Description	Location (canton)
AgroCo2ncept (Flaachtaler Klimabauern)	Group of farmers working to lower their greenhouse gas emissions, supported by the canton and consultants	ZH
Bio Suisse	Swiss organic farmers' association	CH
Crowd Container	Online shop selling organic products directly from producers in Switzerland and worldwide	ZH
gebana	Online shop selling organic products directly from producers in Switzerland and worldwide	ZH
microferme movement (in the Romandie)	Training and policies focusing on "microfermes" (=farms with an area of <1ha)	CH
pro specie rara	Non-profit organization working on preserving the genetic diversity of plants and animals, propagating and breeding traditional varieties	BS
Val Poschiavo	Valley in the canton of Graubünden that is converting all of its farmland to organic practices; supported by the state as a project of regional development (PRE)	GR

4.3.4 Education and training

There are currently no non-academic education or training programs focusing explicitly on a systemic view of agroecology in Switzerland. Instead, there are different projects focusing on one or more principles of agroecology. The curriculum of the **agricultural schools**, where prospective farmers receive their vocational training, does not mention agroecology. There is, however, the possibility of majoring in organic agriculture at many of the schools. Additionally, there are vocational schools offering degrees in organic and biodynamic agriculture.

Farmers' education is described by several KI as strongly influenced by conventional, production-focused thinking and slow to change. Three key-informants mention that social pressures and the availability of courses can already make it difficult for young farmers to specialize in organic farming, let alone focus on agroecology. The apprenticeship curriculum is currently under revision, but KI are skeptical on whether this will bring any fundamental changes in the topics that are covered. One KI explains the relevance of the agricultural schools:

And that is a whole generation, or perhaps even several generations of farmers, who were trained with these images (...). And that cements this system. And it's actually incredibly difficult to change that. – KI 12

A positive point that is mentioned in relation to the agricultural schools is that the system is both well-established and well-financed, thus theoretically providing a good basis for transition. Apart from organic farming, agroecological elements that are already present in the education and training of agricultural practitioners are (direct) marketing and various topics on the levels of input substitution and input efficiency.

Going beyond the schools, there is a wide variety of **private initiatives** offering courses on aspects of agroecology (again, never on agroecology as a holistic concept). The focus lies on different cultivation systems or approaches: permaculture, regenerative agriculture, organic

horticulture or microfarms (*microfermes*). Agricultural advisory services are also mentioned as an option for farmers to widen their agroecological knowledge:

But then we have advisory services for the farms (...), which are accessible for the conventional farms, but also for the (...) organic farms. – KI 12

A problem that comes up in relation to informal/private courses is that they do not make graduates eligible for direct payments and thus do not allow them to cultivate agricultural land in Switzerland. The tenor of the interviews is that these courses are quite in demand, with one KI stating the following about an initiative:

They also have a very long waiting list of apprentices or people who want to learn there, but unfortunately they can't serve or satisfy everyone. There is a demand. – KI 14

Learning opportunities

Figure 15 shows the diverse learning opportunities offered by the initiatives in the online survey. 75 initiatives, including the majority of farms and CSA projects, offer field visits. About half of the initiatives offer a form of non-formal training for adults and/or peer-to-peer learning. 44 initiatives offer advisory services on agricultural practices such as soil conservation and forage production. 41 choose research as a learning opportunity they are engaged in. This includes the five initiatives with science as their main category and seven initiatives whose second activity category is science. Eight out of 13 living labs indicate being involved in research. Vocational training (*Berufsausbildung, Formation professionnelle, Formazione professionale*) is offered by 30 initiatives. Fifteen initiatives indicate offering tertiary education (*Hochschulausbildung, Enseignement supérieur, Istruzione universitaria*). However, not all of these initiatives are recognizably linked to a higher education institution. Consumer education and children's education (pedagogy programs) were added as additional category based on common comments in the survey. Two initiatives also list (political) advocacy as a learning opportunity they provide.

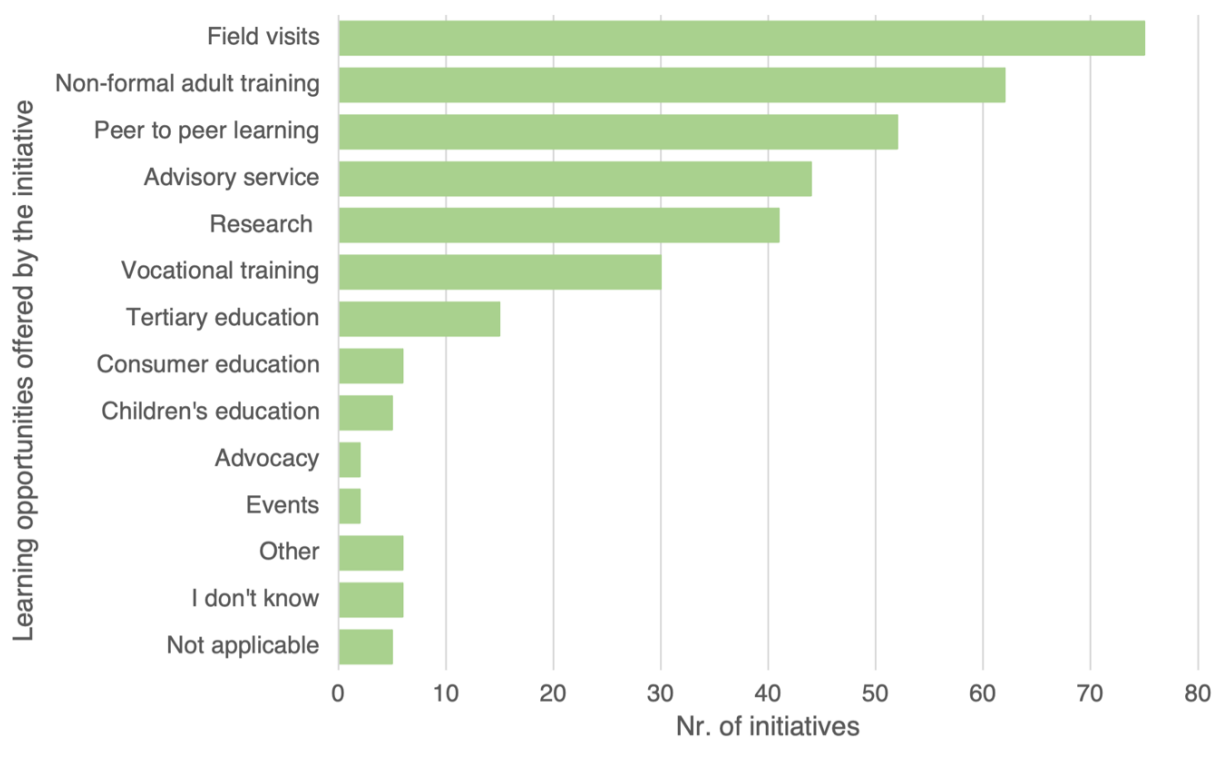


Figure 15: Learning opportunities offered by the initiatives (n=123, multiple choice)

Table 11: Agroecological initiatives in the activity category "education and training"

Initiative	Description	Location (canton)
Bio Landbau Ausbildung	vocational training for organic farmers	CH
Permakultur Schweiz	Swiss platform for permaculture knowledge, offering courses	BE
Regenerativ Schweiz	Swiss platform for knowledge on regenerative agriculture, offering courses	CH
Rheinau	biodynamic farm, seed producer, biodynamic education for farmers	ZH
F.A.M.E.	privately organized educational course for vegetable growers	BS

4.3.5 Living lab

Overall, living labs do not seem to be a well-known concept in Switzerland. Many key-informants do not know the term or express uncertainty over its definition. When explained the concept, many are critical if living labs are a useful or new tool. A common critical point is that living labs are a concept that has been used for a long time (especially in organic research), which has now been repackaged under a new name. Similarly, two KI call it a buzzword (*Modewort*).

The question of "top down vs. bottom up" is also often brought up: According to several KI, living labs should not merely be field trials initiated by a research institution but count on participants (in particular farmers or local communities) actually wanting to implement change, otherwise they cannot be impactful. The consensus is that living-lab projects need to have strong bottom-up support to work effectively. The following quote describes what constitutes a successful living lab, according to one KI:

People know each other, they have trust, they know this works. They know their voice will be heard. Everyone works on an equal footing. – KI 12

A re-occurring perception is also that there are projects effectively functioning as living labs, but not using the term to describe themselves. In fact, only one project comes up that explicitly uses the terms "living lab" and "agroecology" in its self-description: The *Technikum Urbane Agrarökologie*²⁶ (technical center for urban agroecology) in Zurich.

Table 12: Agroecological initiatives in the activity category "living lab"

Initiative	Description	Location (canton)
Klimaneutrale Landwirtschaft Graubünden	Cantonal project with the aim to make farms climate neutral by reducing their greenhouse gas emissions. A variety of measures were developed in cooperation with the farmers.	GR
FiBL Ackerbau Netzwerk	living lab network by the FiBL, focusing on arable farming	CH

²⁶ <https://urbaneagraroekologie.ch>

4.4 Characterization of agroecological initiatives

4.4.1 Existing online inventories

Table 13 lists existing online inventories of agroecological initiatives in Switzerland. These initiatives were not integrated into the database for this thesis but provide a possible pool for expansion. The list is not exhaustive – there are likely many more comparable online inventories of initiatives for other regions of Switzerland or aspects of agroecology. The initiatives listed on these websites do not necessarily call themselves agroecological. Rather, they have been collected to provide further insight into activity in Switzerland in what can be considered aspects of agroecology (e.g., a focus on local value chains or agricultural production approaches).

Table 13: Existing online inventories of agroecological initiatives in Switzerland (blue – practice, orange – movement)

Name	Description	Number of entries
Agriculture Durable Genève (Office cantonal de l'agriculture et de la nature, 2023)	Portal maintained by a number of private and public actors providing information on various projects on sustainable agriculture in Geneva	5 overarching categories with various examples
Aus Stadt und Land (Aus Stadt und Land, 2023)	Project for regional development (PRE) in the cantons of Basel and Basel-Landschaft with a focus on local value chain	18 members (producers)
Biomondo (biomondo, 2023)	Online marketplace for organic products, farms and services; run by the Swiss organic association BioSuisse	1500 total advertisements for products and services, 2392 farms
Bionetz (bionetz.ch, 2023b)	Swiss online platform for companies from the entire value chain of organic products	590 retail, 209 gastronomy, 48 processing, 86 trade, 55 various others
Bio Partner (Bio Partner, 2023)	Supplier of organic products for (organic) retailers and gastronomy	9 Biopartner stores, 259 organic retailers, 403 retailers, 140 gastronomy
Klimaneutrale Landwirtschaft Graubünden (Klimaneutrale Landwirtschaft Graubünden, 2023a)	Project testing various measures on-farm to make agriculture «climate neutral» in the canton of Graubünden	52 participating pilot farms
Permakultur Landwirtschaft (Permakultur-Landwirtschaft, 2023)	Exchange and knowledge platform for producers using permaculture approaches	29 farms (under development or already established) as part of the farm-network
Permakultur Schweiz (Verein Permakultur Schweiz, 2023)	Association representing users of permaculture practices in Switzerland	13 companies offering permaculture services; 19 regional groups
Regenerativ Schweiz (Regenerativ Schweiz, 2023)	Learning platform for regenerative agriculture	Approx. 25 farms
Urschwyz (Urschwyz, 2023)	Local stores and farms in the canton of Schwyz	25 gastronomy, 52 regional producers
Agroecology Works! (Agroecology Works! & Agroecology Map, 2023)	Swiss network for agroecology working for a transformation of the food system	11 initiatives on Agroecology Map; 28 members
Biovision (Biovision, 2023)	Foundation working on a project highlighting examples for a sustainable food system (“Leuchtturmprojekte”) in Switzerland	18 portraits

ConProBio (ConProBio, 2023)	cooperative of organic consumers and producers in the canton Ticino	Approx. 80 suppliers
Fédération romande de l'agriculture contractuelle de proximité (FRACP) (Fédération romande de l'agriculture contractuelle de proximité (FRACP), 2023)	network connecting CSA projects (farmers and consumers) in the Romandie	31 CSA projects
Kooperationsstelle für solidarische Landwirtschaft (Kooperationsstelle für solidarische Landwirtschaft, 2023)	Networking platform for CSAs in Switzerland and neighboring countries	Approx. 200 entries (farms, planned projects and collection points)
Mouvement pour une agriculture paysanne et citoyenne (MAPC) (MAPC, 2023)	Movement advocating for peasant farming and food sovereignty in the canton of Geneva	50 members (producers, retail and processing)
Transition Zürich (Transition Zürich, 2023)	Association advocating for responsible individual consumption	More than 200 nutrition related initiatives
Verband Regionale Vertragslandwirtschaft (Solawi-RVL-Verband, 2022)	Association for CSA projects in German- speaking Switzerland	15 CSA projects

4.4.2 Location

Database

609 initiatives were collected in the database. The heatmaps in Figures 16 and 17 visualize the distribution of initiatives on a cantonal level. 61 initiatives were not considered for the maps as they do not have a specific locations but operate on a regional or national level. At 170, the canton of Zurich records the highest absolute number of initiatives (Figure 16). This is followed by the cantons of Bern (75), Geneva (56), Vaud (37) and Graubünden (29).

When sorting the data according to initiative density (=number of initiatives/permanent inhabitant of each canton (Bundesamt für Statistik (BFS), 2023)), the Alpine cantons of Appenzell Inner Rhoden, Uri, Obwalden and Graubünden as well as the more urban cantons of Basel-Stadt, Geneva and Zurich lead the table (Figure 17).

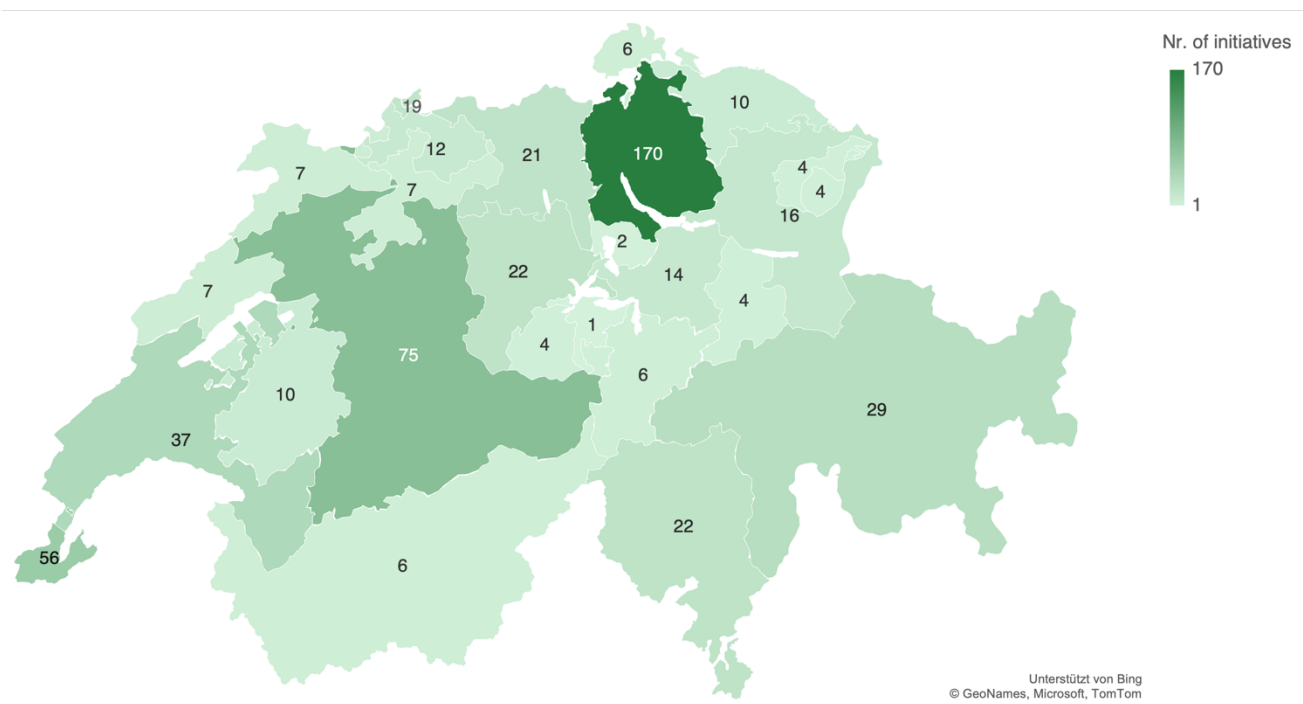


Figure 16: Absolute number of initiatives in each canton in the database

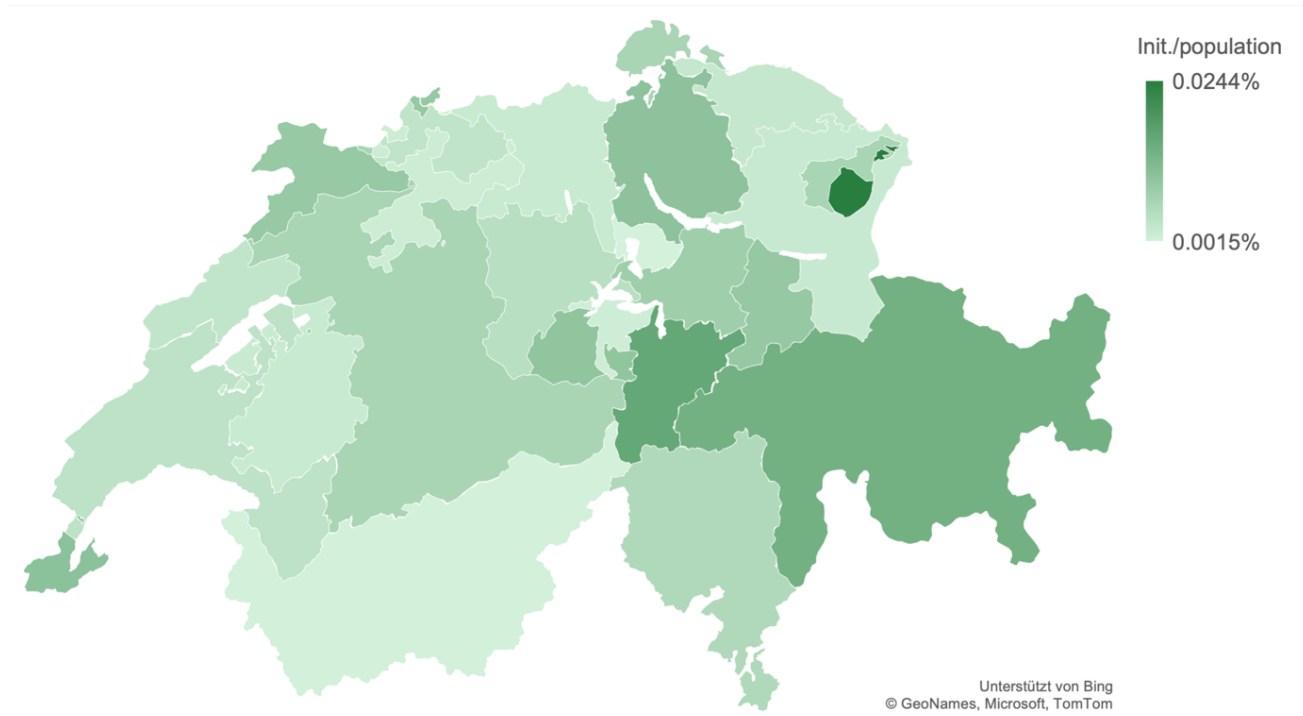


Figure 17: Initiative density per canton (nr. of initiatives/permanent inhabitant)

Online survey

125 valid answers to the online survey were recorded. Figure 18 shows the locations of the 96 agroecological initiatives that indicated their exact location in the survey and gave permission to appear in this thesis. They are sorted according to their main activity category. 21 initiatives do not indicate a specific location or canton in the survey and are thus not included in the map – these are initiatives whose activity is not bound to a specific place, e.g., nationwide associations or producer networks.

Most answers are recorded for initiatives located in the cantons of Zurich (26), Bern (18), Vaud (10) and Geneva (10). The map shows a clustering of these initiatives around the cities of Zurich, Bern, Lausanne and Geneva. 21 initiatives do not indicate a specific location (instead choosing CH – Swiss-wide) and are not shown on the map. No initiatives are located in the cantons of Uri, Obwalden, Nidwalden, Glarus, Appenzell Inner- and Ausser Rhoden. Between one and five initiatives are located in each of the other cantons.

The list of initiatives shown in Figure 10 and additional initiatives from the online survey can be found in Appendix E.

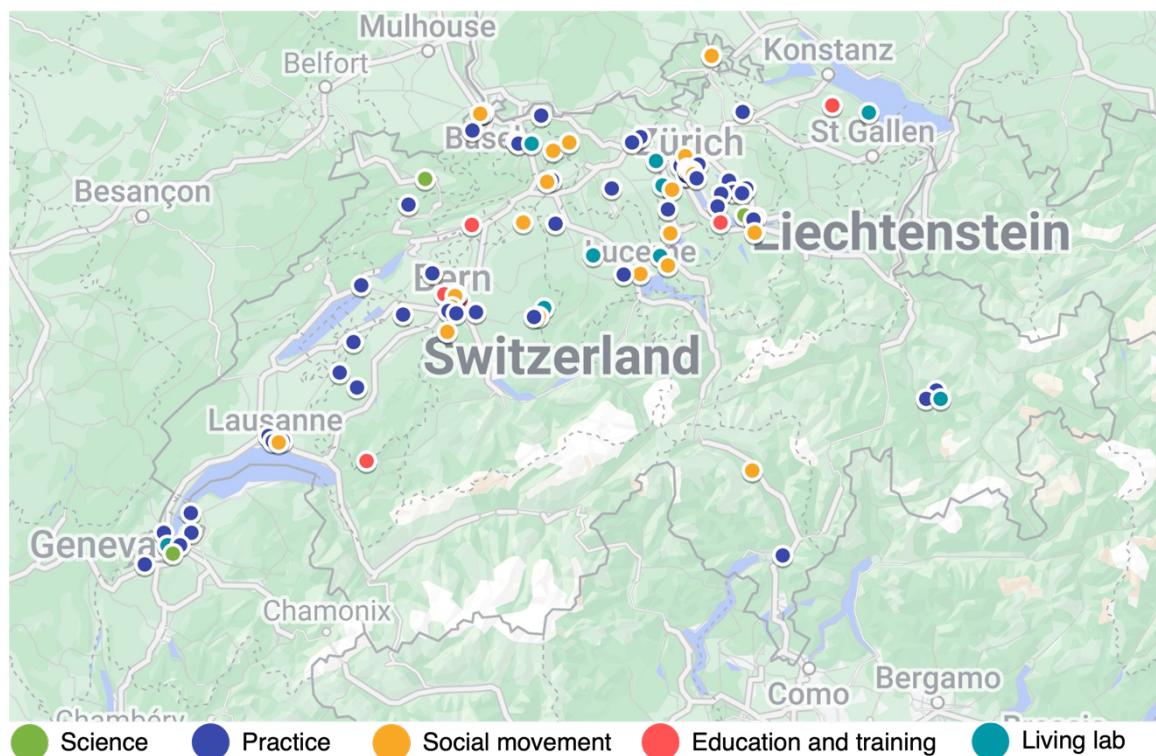


Figure 18: Location of initiatives in the online survey

4.4.3 Activity

This chapter describes both main activity category, as defined by Wezel et al. (2023), and the more specific topics of the collected initiatives. It takes into account results from both the database and the online survey.

Activity categories

Initiatives in the database are attributed to one of five activity categories. In the online survey, initiatives placed themselves in a main activity category and an (optional) second activity category.

The distribution of initiatives in the database is visualized in Figure 19. About two thirds of initiatives are attributed to the category of practice, about one fifth are placed in the social movement and a tenth are science initiatives. Education and training as well as living labs make up only a small proportion of total initiatives. A slightly different image emerges in the online survey (Figure 20). Initiatives choosing practice and social movement as their main activity categories are still the most common, albeit making up slightly different proportions of total initiatives (about half and about a third, respectively). Science initiatives are *less* common, while education and training initiatives are *more* common. Living labs represent only about 1% of the database but roughly 10% of initiatives in the online survey.

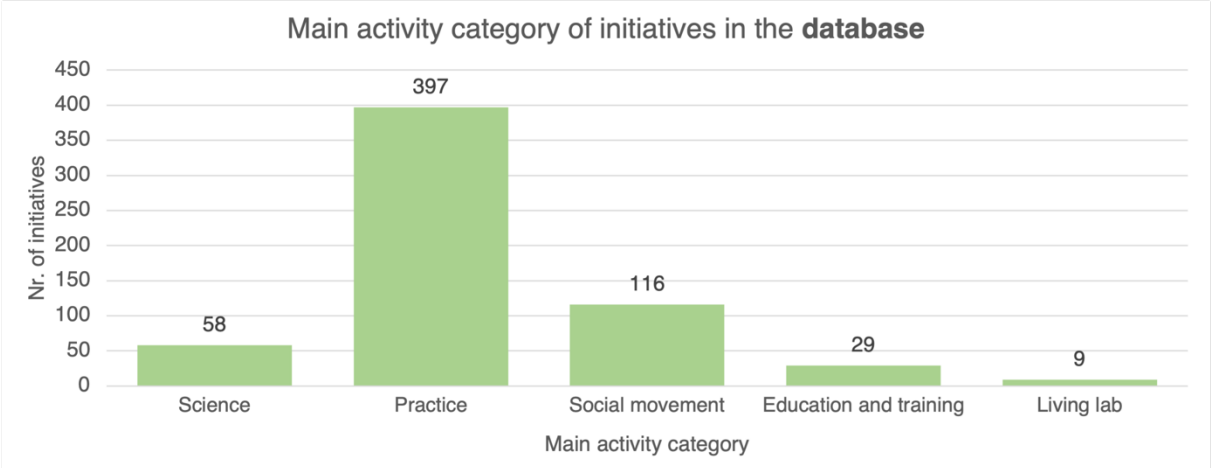


Figure 19: Main activity categories of initiatives in the database (n = 609)

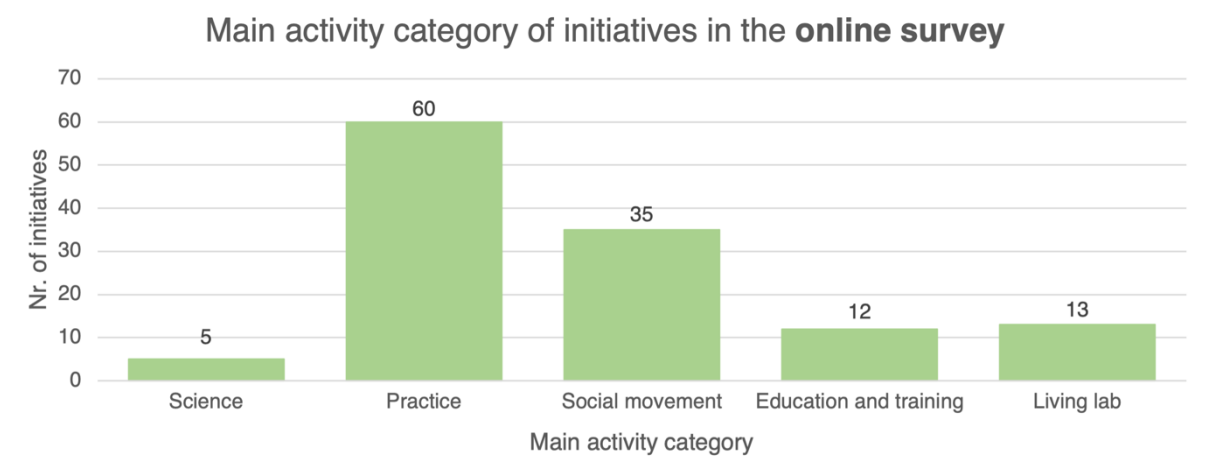


Figure 20: Number of online survey initiatives in each main activity category (n = 125)

101 out of 125 initiatives in the survey choose a *second* category to further describe their activity. The interrelation between main and second activity category is shown in Figure 21. Practice is the most frequently chosen second activity category in all other main activity categories. For practice, the most commonly chosen second activity category is social movement, followed by living labs.

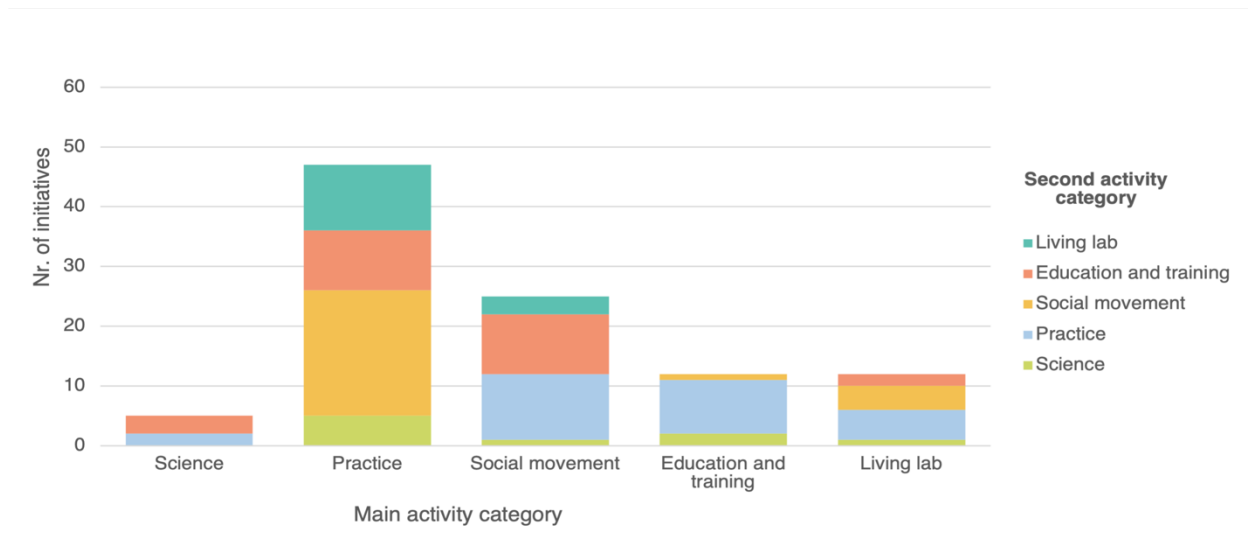


Figure 21: Second activity category in relation to main activity category of the initiatives (n=101)

Specific topics

Initiatives were asked to describe the specific topic(s) they work on. The quotes provided in this section are examples of initiatives' descriptions of those comments.

On the **agroecosystem** level, commonly mentioned topics are practical approaches or farming systems. This includes Community Supported Agriculture (CSA), permaculture, regenerative farming and organic agriculture. For example:

Implementation of the 6 principles of regenerative agriculture

Solidarity-based food production, self-managed sustenance, member-supported farm

Other initiatives list the specific product(s) they manufacture, with vegetables and seeds mentioned most frequently. Examples include:

Self-harvest vegetables

Autochthonous seeds for (extensive agricultural) area

Another common topic is biodiversity, including the diversity of cultures and heirloom varieties.

On the **food system** level, some initiatives say they very generally focus on "sustainability" or the "food system". Others set their focus on more specific aspects of those two concepts. A number of initiatives is active in the downstream food supply chain. Their specific focus lies on **economic** aspects such as fair prices, food distribution, retail and the support of local businesses. One initiative describes their work as follows:

Selling products from small farmers in small shops

Another group of initiatives focuses more on **social** aspects of the food system. Their specific topics include consumer-producer-relations, various forms of education and knowledge creation, the promotion of local food production and nutrition. For example:

Collecting and sharing information, networking, connecting people

A third group can be formed of initiatives that are focusing on **ecological** aspects of the food system, specifically food waste and adaptation to climate change.

Finally, a group of initiatives focuses on **political** topics such as food democracy, (federal) agricultural policy and access to land. For example:

Policy and advocacy to promote agroecology; shaping national policies (focus agrarian policies); promoting agroecological territorial food systems through participatory multi-stakeholder processes

This chapter illustrates that the activities of agroecological initiatives cover a wide range of topics, from aspects of the agroecosystem to the food system.

4.4.4 Amount and type of people

The definition of “people the initiative connects” was purposefully left open and initiatives were asked to use the definition they deemed most relevant. As a result, the number of people connected by the initiatives varies widely from one single person to more than 5000 (Figure 22). Commonly mentioned definitions of “connected people” are employees, volunteers, students and members. The initiatives indicating that they connect >5000 people also include consumers, employees and in one case small-holder farmers in the global South, in their definition.

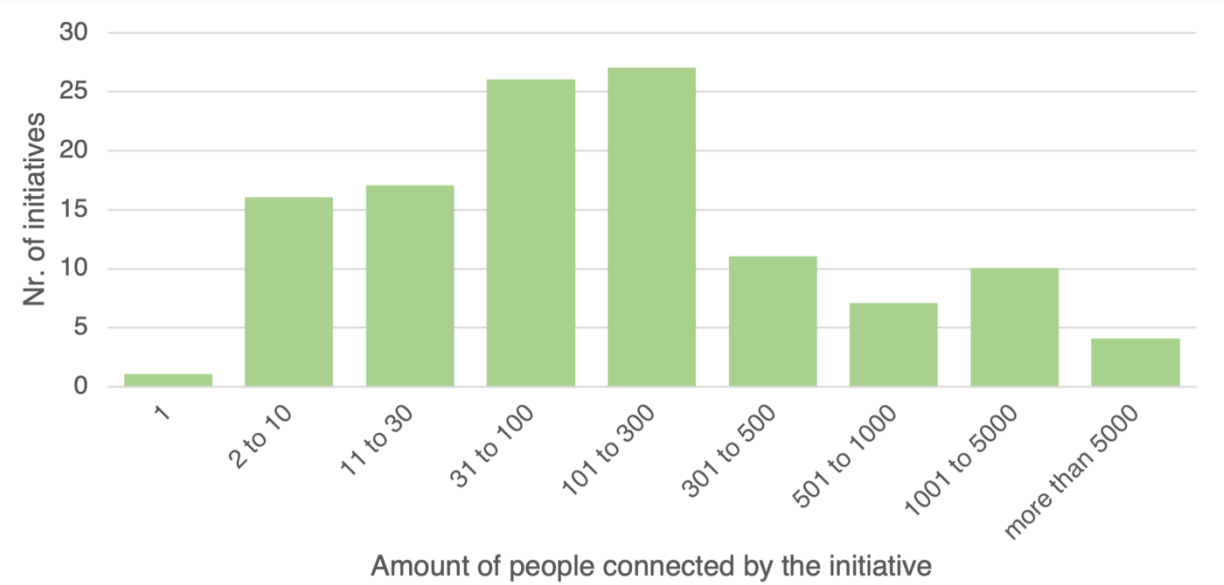


Figure 22: Number of people connected by the initiatives (n=119)

Figure 23 shows the types of actors that are involved in the initiatives. The most common answers are farmers (99) and consumers/citizens (95). Policy makers are only involved in 15 out of 125 initiatives.

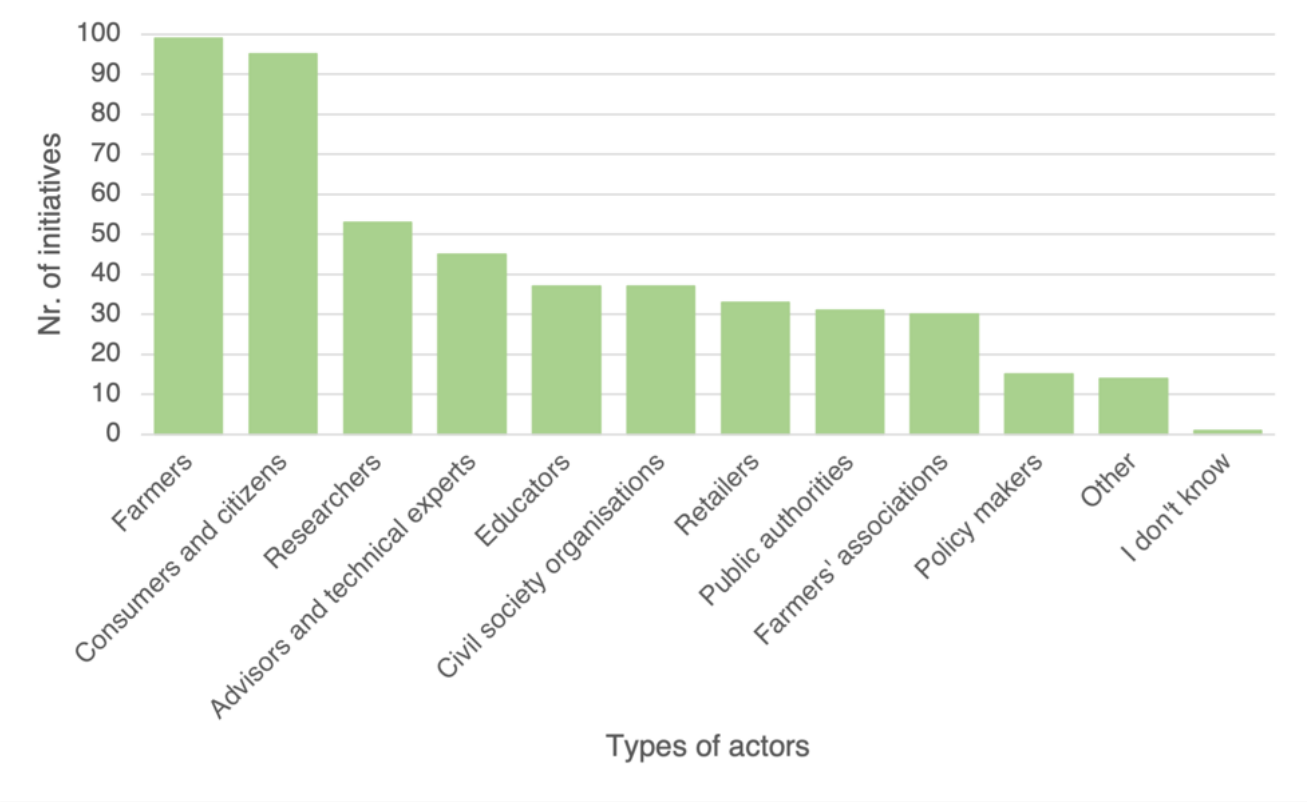


Figure 23: Types of actors involved in the initiatives (n=125, multiple choice)

4.4.5 Funding

Figure 24 shows multiple choice answers regarding the funding of agroecological initiatives, which was answered by all 125 initiatives. Most initiatives are funded through own funds. About half receive donations. Less than forty are financed by public funds. 31 initiatives are funded by subsidies.

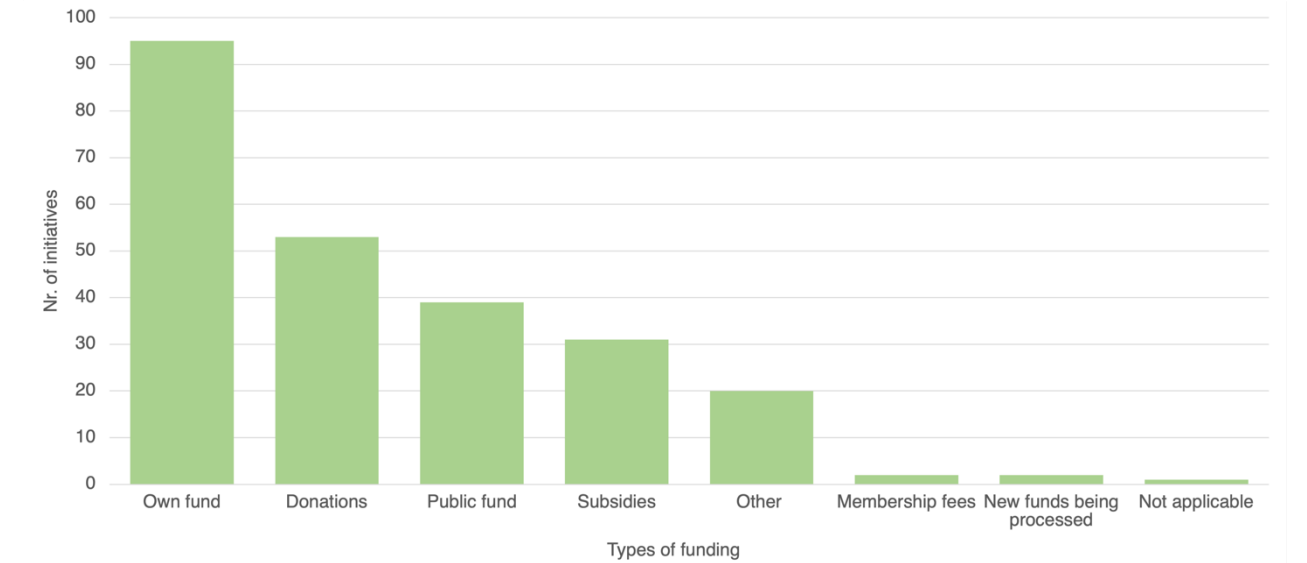


Figure 24: Types of funding accessed by the initiatives (n=125, multiple choice)

The majority of those are practice initiatives, but the group also includes initiatives indicating science, social movement or living lab as their main activity category. 37 initiatives with practice as their main category do not indicate subsidies as part of their funding. This group includes some farms, but also food processing initiatives, CSA projects, a restaurant and various associations. Two initiatives add membership fees as an additional source of funding and two explicitly state that they are in the process of acquiring new sources of funding. One initiative indicates that the question of funding is “not applicable” and 20 initiatives choose “other” types of funding without providing further specification.

5 Discussion

In the following, the research questions of this study are discussed and answered. To this end, the results from the interviews and the online survey are placed in relation to the literature presented in Chapter 2 and further research.

Chapter 5.1 answers the research question of “How transformative is the understanding of agroecology in Switzerland?”. Chapter 5.2 illustrates the development of agroecology in the country. Chapter 5.3 discusses the state of agroecological activity. Finally, Chapter 5.4 answers questions about existing agroecological initiatives, their distribution and activities.

5.1 Understanding of agroecology in Switzerland

RESEARCH QUESTION

How transformative is the understanding of agroecology in Switzerland?

Which barriers and opportunities play into the understanding of agroecological transformation of the food system in Switzerland?

The discussion around agroecology in this thesis is well-aligned with the HLPE definition of agroecology – all 13 agroecological principles are discussed by several key-informants. Combined with the fact that the majority of key-informants also include the three dimensions of agroecology (science, practice and social movement) in their understanding of agroecology, a holistic understanding of agroecology can be observed in this thesis.

Several key-informants perceive a **vagueness in the definition** or interpretation of agroecology and many mention that it is an actively contested concept. Discussions about a workable definition of agroecology in Switzerland are ongoing (Kummer, 2021), reflecting a broader trend of agroecology in Europe (Wezel, Goris, et al., 2018). Agreeing on a definition is a key task for the near future of agroecology in Switzerland. The question of what can consolidate agroecology is not discussed in detail in this thesis, as an analysis of the results on the narratives around agroecology is being conducted for another thesis (Bossard, in preparation)s.

5.1.1 Transformative, holistic agroecology?

What sets agroecology apart from other approaches to sustainable agriculture is its fundamental transformative dimension (Anderson et al., 2021; Gliessman, 2016b). This explicitly transformative **definition** is not shared by all KI in this. This underlines the vagueness of terminology around agroecology – even though transformation may not explicitly factor into a person’s definition of agroecology, their actions can still contribute to food system transformation.

The least-discussed **principles** are those of *input reduction* and *participation*. Input reduction is one of the “least transformative” principles. It is possible that KI consider this principle as a given when speaking of agroecology and food system transformation and thus do not mention it in their discussion. Participation lies “on the other end of the spectrum”, as it requires a fundamental rethinking of the system. It is possible that many KI do not give priority to level 5 (redesign) processes and thus do not consider the principle of participation as highly relevant.

The principles related to level 5 (*participation, fairness, land and natural resource governance*) also receive the least attention in the discussion with KI overall. A trend which can be observed in the public debate around agroecology as well.

The state of the principles of *soil health, biodiversity, recycling and animal health* is perceived the most positively by KI. All four of these principles can be linked to level 1 and 2

transformation. This may be an indication of the overall focus of agroecology in Switzerland – it focuses more strongly on agroecosystem measures, on input reduction and substitution (Kummer, 2021).

The *co-creation of knowledge*, which forms part of level 3 transformation, is deemed relevant by many KI. However, it is not a principle that is commonly implemented yet – as illustrated by the fact that there are no education and training programs focusing on agroecology.

In policy

Many of the **policy** instruments supporting agroecology on a federal level discussed in this thesis focus on input reduction (level 1) or substitution (level 2). The proof of ecological performance, which is most commonly mentioned, is a level 2 instrument. Subsidies for permaculture systems and agroforestry can be located at level 3, as they support the redesign of agroecosystems.

The regional policy of the canton Vaud (regulation on agroecology RAgEco) addresses social aspects of agroecology and can thus be said to include level 4 measures. An assessment of the RAgEco based on the five levels of transformation also shows that all levels factor into its text (Agroecology Info Pool, 2018).

In 2021, the Federal Council first explicitly committed to the support of a holistic agroecology (Biovision, 2022). The 2022 report on the future direction of federal agricultural policy then also mentions the 13 principles of agroecology as the base for a holistic transformation towards sustainable food systems. Describing how the measures it lays out relate to the agroecological principles, it writes the following:

The principles of the first two groups [1. Improving resource efficiency and 2. strengthening resilience] are explicitly, and those of the third group [3. Securing social equity/responsibility] are partially taken into account in the fields of action. (Federal Council, 2022a, p. 68)

This quote illustrates a continued focus on levels 1 – 3 of transformation (Gliessman, 2016b).

Maybe the most relevant policy document for agroecology in Switzerland currently is the *2050 Climate Strategy for Agriculture and Food*, outlining the future of agricultural policy in Switzerland, which emerged from the above mentioned report. The document explicitly commits to a transformative understanding of agroecology based on the 13 principles (*Klimastrategie Landwirtschaft Und Ernährung 2050*, 2023). However, criticisms include that the strategy does not include enough measures that target the entire food system and that its measures do not sufficiently reflect the focus on agriculture *and* nutrition (Vision Landwirtschaft et al., 2023). Effectively, there is thus still a lack of policy documents holistically supporting an agroecological transition, a shortcoming which is also described by key-informants and by the findings of Kummer (2021).

Barriers and opportunities

Various **barriers** to the principles on the food system scale are discussed: market mechanisms stand in the way of more *connectivity* and *fairness*, agricultural policy still promotes large farms and complicates *economic diversification*, education often focuses on efficiency and not the *co-creation of knowledge* and access to land (*land governance*) is difficult for many.

Opportunities for agroecology in Switzerland on the other hand include established alternative marketing channels (*connectivity*), a diversity of landscape (supporting *economic diversification*), a well-established education system (*co-creation of knowledge*) and a federalist system that can potentially support *participation*.

Kummer (2021) assessed the barriers and opportunities for agroecology in Switzerland in more detail and also found that many of them overlap with the general literature on barriers and opportunities for agroecology.

These results suggest that, while agroecology is starting to make its way into a more prominent position in Switzerland, the implementation and acknowledgement of its more transformative aspects is still difficult.

5.2 Development of agroecology

RESEARCH QUESTION

What has the development of agroecology been like in Switzerland?

5.2.1 Timeline

First “seeds of agroecology” were sown in Switzerland decades ago. Switzerland is a pioneer in organic research and organic agriculture (Niggli, 2000): The research institute for organic agriculture (FiBL) was founded 1973, followed by the organic farmers’ association BioSuisse in 1981. Uniterre as an association fighting for food sovereignty and peasant rights looks back on a 72 year history (it was founded in 1951) (Uniterre, 2023). Slow Food Switzerland turned 30 this year (Slow Food Schweiz, 2023). The first documented example of a CSA project in Europe is also in Switzerland: “Le jardins de cocagne” in the canton Geneva is 45 years old (founded in 1978) and still thriving (Les Jardins de Cocagne, 2023).

The steep increase in initiatives founded in the last decade matches the general trend of agroecology across Europe in recent years (Wezel, Goette, et al., 2018). More concretely, the online survey data shows a jump in new initiatives **between 2015 and 2016**. This could be attributed to a couple of key-events for agroecology that happened around that time: In September 2014 the first symposium on agroecology ever hosted and coordinated by the FAO took place in Rome (“Agroecology for Food Security and Nutrition”) (FAO, 2014). In 2015, food providers from all over the world came together at the Forum for Agroecology in Sélingué, Mali, debated issues of the industrial food system and published a report detailing how localized food systems can be sustained through agroecology (International Forum for Agroecology, 2015). The same year, a textbook on agroecology introducing the concept of levels of transformation was published (Gliessman, 2015) In January 2016, the European association for agroecology (Gliessman, 2016a) was founded with the aim of spreading knowledge on agroecology more widely across the continent. A CSA census report also conducted in 2015 and published in 2016 (European CSA Research Group, 2016).

No initial event initially jumps out in Switzerland that could have provoked such a spike in new initiatives. However, the following points can be mentioned for that time period:

In 2014, a study by Eawag titled “More than 100 pesticides in rivers” brought awareness of pesticide residues to Swiss citizens (Wittmer et al., 2014). An interpellation to the national council followed, that demanded to rethink the intensive use of pesticides in Swiss agriculture (Semadeni, 2014). At the end of 2014, the Federal Council proposed that research into organic farming and sustainable agriculture be promoted more strongly (Federal Council, 2014). 2015 was declared the “International Year of Soil” by the UN and all over Switzerland, events were held to “bring soil closer to the population as a fundamental resource and to raise awareness of the vital services provided by soil” (Sektion Medien BAFU, 2015). The same year, Prof. M. Altieri, a “pioneer of agroecology”, visited Switzerland and spoke at two events (Imhasly, 2015; Vision Landwirtschaft, 2015). The popular initiative “No speculation with food” (*Keine Spekulation mit Nahrungsmitteln*) was discussed in national parliament in 2015 and voted on in February 2016. (The initiative was rejected.) (Bundeskanzlei BK, 2023)

All of these may just be comparatively small, relatively insignificant events, or they may be small things that, in sum, helped tip the scales toward agroecology in Switzerland.

5.2.2 Organic agriculture and agroecology

Organic farming practices are the most prominent manifestation of agroecological practices. Organic farmers' education is the best established non-academic education and training program in the field of agroecology. The FiBL plays a central role in agroecological research and is involved in several living lab projects. The oldest initiative recorded in the survey is a bio-dynamic project. All this is to say that organic farming and agroecology are thus inextricably linked in Switzerland. Nonetheless, organic agriculture and agroecology cannot just be equated – they are not the same thing, and their commonalities and differences are points of contention in the KI interviews. As mentioned in the results section, this discussion focuses mostly on practical aspects of the discussion around agroecology and organic farming. A more detailed analysis on the **discourse** around agroecology and organic farming in the KI interviews is being conducted by N. Bossard (in preparation).

Switzerland was a **pioneer** of the organic movement (Niggli, 2000). The FiBL, founded in 1973, is one of the oldest and largest organic research centers in Europe (Niggli, 2000). The umbrella association for organic farmers, Bio Suisse, was founded in 1980 (Bio Suisse, 2023a; Niggli, 2000). Bellon et al. (2011) describe an overlap of actors in the field of organic farming and agroecology in the scientific literature. Based on the fact that several of the key-informants (who were identified as relevant to agroecology in Switzerland) are active in the organic sector, this thesis confirms their finding. The participation of a large amount of organic farms in the online survey can also be interpreted as an interest in agroecology on the side of organic producers.

The data in this thesis shows organic farming **practices** to be the most prominent manifestation of agroecological practice. This is supported by the literature (IFOAM EU, 2019; Wezel et al., 2009). Many of the foci of organic agricultural practices are also found in agroecology: a circularity approach, an emphasis of soil fertility and biodiversity and the aim to reduce external inputs (Bellon et al., 2011; IFOAM EU, 2019). The agroecological principles (HLPE, 2019) of soil health, recycling and input reduction are indeed discussed in reference to organic farming by KI. However, biodiversity is not.

In their position paper on agroecology, IFOAM Europe write:

Organic is the only agroecological farming approach today with a legally ensured guarantee system – (IFOAM EU, 2019, p. 5)

This view is reflected in the key-informant interviews in this thesis. The advantages of having a legally binding set of rules are pointed out. However, even though agroecology is not as institutionalized as organic farming, the concept is making its way into policy documents, and the two concepts are increasingly occurring together (Bellon et al., 2011)

The subordinate role of **social aspects** is seen as a limitation of organic agriculture by KI. This view is reflected in the literature. Leblanc (2018) points out organic farming's focus on environmental aspects of sustainability. However, this is something which has been disputed by IFOAM Europe, who points out that while social aspects are indeed not part of the European legal rules on organic farming, they are more centered by local organic organizations, including Bio Suisse (Bellon et al., 2011; IFOAM EU, 2019). The regulation on organic farming by the Swiss organic farmers' association includes social justice and fair trade (Bio Suisse, 2023b). Increased social recognition of the farming profession through the organic movement is mentioned as an exception by one KI. This observation is supported by studies showing that consumers rate organic food as healthier, more nutritious and environmentally friendly (Niggli,

2000). Studies also show that organic producers tend to be more satisfied with their work than conventional ones (Bouttes et al., 2020; Schanz et al., 2023).

Supermarkets (in particular the two large retailers Migros and Coop) are important distribution channels for organic products (Niggli, 2000). The influence of global corporate interests on organic agriculture (so-called **conventionalization**) has been criticized (Leblanc, 2018; Rover et al., 2020). In this thesis, the power and influence of these large retailers are also identified as a barrier for agroecology. Analyzing how much the power and influence of these corporations affect agroecology in Switzerland goes beyond the scope of this thesis but is an interesting question for further research. At the same time, well-established alternative marketing channels (direct marketing and farmer's markets) also appear in the data of this thesis. They are a form of close producer-consumer relation that can be categorized in the agroecological principle of "connectivity". Notably, this food system approach (levels 4 and 5 of transformation, including the principles of connectivity, fairness and participation (Gliessman, 2016b; HLPE, 2019)) is what agroecology can bring to the table to help with the issues of conventionalization in the current organic movement.

Opinions by KI in this thesis vary as to how organic agriculture and agroecology can best **complement each other**. The number of organic farmers in Switzerland has been continuously increasing (BioSuisse, 2022; Bundesamt für Statistik BFS, 2023). Deepening and further analyzing the relationships between agroecology and organic farming will be important – in research, but also in practice and social movement. Strengthening synergies by developing beneficial convergences - what Bellon et al. (2011) call "cross-fertilization". This view is shared by IFOAM Europe, who emphasize the valuable new impulses that agroecology and the organic movement can bring to each other (IFOAM EU 2019).

5.3 State of agroecological activity

RESEARCH QUESTION

What is the current state of agroecological activity in the five categories of science, movement, practice, living lab and education in Switzerland?

Agroecology is not yet a widely recognized concept in Switzerland. Many of the initiatives identified in this work do not call themselves an agroecology initiative. Among key-informants, the term agroecology is well-known, but not always used in daily activities. Overall, according to key-informants, **awareness of agroecology** is not well-established in Switzerland and the concept is currently shaped by individual organizations and sometimes even individual people strongly advocating for its implementation. It has a solid scientific backing but is not perceived as practice-based, and thus not widely used, by farmers. The social movement for agroecology is characterized by the presence of small groups dedicating themselves to the cause.

The online survey data relativizes this observation to an extent, by showing that, while many initiatives do not *use* the term agroecology, almost all of them *know* the concept and its definition. Further detail on the state of the respective pillars is provided in the following subchapters.

When looking at other European mapping projects, the use and recognition of the term agroecology in Switzerland is most comparable with Austria and Germany: The term agroecology is generally not well-known or widely used in either Switzerland, Germany or Austria. The countries share the strong practical implementation of agroecology through organic farming, the fragmented (but existing) social movement and the strongly science-based understanding (Brumer et al., 2023).

Comparing the state of agroecology in Switzerland to other European countries reveals both similarities and differences:

Italy and Hungary also share the strongly scientific understanding of agroecology (Balogh et al., 2020; Migliorini et al., 2018).

Agroecology in Spain is characterized by a strong transformative social movement (González De Molina & Guzmán, 2017; Migliorini et al., 2018). Other European countries (e.g., Poland and Bulgaria) do not report any political action for agroecology yet (Moudrý et al., 2018; Wezel et al., 2023). Switzerland can be located somewhere in between the two, with a small, but active selection of initiatives already strongly contributing to the social movement.

In Eastern Europe, agroecology is quite well represented in academia and study programs in agroecology are taught at many universities (Moudrý et al., 2018). In contrast, while there are various courses and degrees focusing on aspects of agroecology in Switzerland, no higher education institution currently offers a **degree** in agroecology.

5.3.1 Agroecology as a science in Switzerland

Agroecology as a science is the most well-known manifestation of agroecology in Switzerland. Agroecological topics are represented in the research at many of the research institutions across Switzerland. Research on organic agriculture in particular has played a significant role in the development of agroecology in Switzerland. Various degrees include courses on aspects of agroecology. There are, however, no higher education institution offering a degree in agroecology.

A variety of objects, concepts, levels of scale, and research methods can be attributed to agroecological research depending on one's definition (Wezel & Bellon, 2018). This variety is reflected in the Swiss research landscape, which covers a wide array of topics (e.g. soil ecology, land use change, permaculture, regional development and social geography)) and is conducted on the plot, farm and food system scale. Wezel et al. (2018) list major current agroecology research topics: soil, water, ecosystem services, farming practices, agroecosystems, health, socio-economics and food systems. All of these topics are also covered by Swiss research institutions.

The perception of agroecology as a science first is in line with the perception of agroecology in neighboring countries such as Germany and Austria (Brumer et al., 2023). It also confirms the findings of Gallardo-López et al. (2018), whose literature review revealed that, in Switzerland, just like in most European countries today, agroecology is perceived as a scientific discipline first. Wezel & Soldat (2009) describe how the science of agroecology in Europe was historically rooted in the combination of the scientific fields of agronomy and ecology. The same can be observed for Switzerland, where social and economic aspects of agroecology have only become more prevalent in the research recently.

5.3.2 Agroecology as a social movement in Switzerland

The social movement for agroecology in Switzerland is not very present on a large scale but there are various organizations working very actively on the topic. The topics most present in these initiatives are (fair) trade, small farmer's rights and building networks. Some of the initiatives also have strong international ties – e.g., international NGOs with head offices in Switzerland such as SWISSAID²⁷ and the Biovision Foundation²⁸.

Standing out in the social movement in Switzerland is the network Agroecology Works!, which is explicitly promoting agroecology. Similar nation-wide associations are only found in a few other European countries (e.g., the Associazione Italiani di Agroecologia (Associazione Italiana di Agroecologia AIDA, 2023) and Agroecology Greece (Agroecology Greece, 2022)) (Wezel et al., 2023).

²⁷ <https://www.swissaid.ch/de/>

²⁸ <https://www.biovision.ch>

The social movement for agroecology is rooted in the fight for food sovereignty (Forum for Food Sovereignty, 2007). While this connection is actually not explicitly mentioned by many key-informants, various initiatives fighting for food security are repeatedly listed. These include Slow Food Switzerland, Uniterre and the MAPC in Geneva. Worth mentioning are the *federal initiative* and the *cantonal regulation* on food sovereignty in Ticino, which was also carried by social movements (Federal Council, 2018; Repubblica e Cantone Ticino, 2018).

CSA projects are also highly relevant to food sovereignty and emerge as a major implementation of the social movement in this thesis, a finding which is also described by Kummer (2021). Switzerland is actually home to two pioneering projects in this field, including Europe's first CSA: Les Jardins de Cocagne²⁹, established in 1978 and La Clef de Champs³⁰ in 1982 (European CSA Research Group, 2016; Wezel, Goette, et al., 2018). A 2015 census report counted 60 CSAs across Switzerland, the majority of which have been created since 2007, falling in step with an almost exponential increase in new CSA projects across Europe (European CSA Research Group, 2016). The following quote illustrates the findings of this thesis surrounding CSAs:

If trying to describe the typical Swiss CSA initiative it would be: a group of people near an urban area, whether a cooperative or NGO, producing vegetables and if possible (...) something else. – (European CSA Research Group, 2016, p. 109)

This picks up on key-informants' perception that agroecological initiatives are clustered around cities and the fact that a large amount of initiatives in the online survey list vegetable production as a specific activity. A majority of the CSAs listed in the report are located around the cities Geneva and Lausanne, supporting the observation in this thesis that the Romandie is more focused on regional food than the German-speaking part of the country (where the focus lies more strongly on the production methods instead of the food's origin) (European CSA Research Group, 2016).

Menzi (2023) identified six further categories of initiatives as relevant to the social movement in Switzerland: *farmers' markets, organic stores/local grocery stores, food cooperatives, networks or associations, restaurants and companies*. All of these are also represented in the database.

5.3.3 Agroecology as a practice in Switzerland

Agroecology is not a commonly used concept among practitioners in Switzerland. Even though several agroecological practices and approaches are implemented to some extent by many initiatives, it is rare to have them be referred to as "agroecological".

Soil conservation measures, plant protection, agroforestry and crop rotation are among the most commonly mentioned practices. These practices can be attributed to either the field (tillage and plant protection) or cropping system (agroforestry, crop rotation) scale. No landscape level practices appear in the list of common practices according to key-informants. As described by Wezel et al. (2014), reduced tillage is a common practice due to its good scientific knowledge base, already existing on-farm experience and a small level of required system change.

The strongest implementation of agroecological practices is through organic agriculture (Van Der Ploeg et al., 2019). This is substantiated in this thesis: many of the initiatives in the online survey are certified organic producers and key-informants consistently describe organic farming practices when asked about agroecological farming. Switzerland has a strong organic movement (Niggli, 2000). The number of certified organic farmers is growing, reaching 7341 in 2022 (BioSuisse, 2022). Wezel et al. (2014) predict the faster adoption of agroecological

²⁹ <https://cocagne.ch>

³⁰ <https://clef-des-champs.ch>

practices in less-favored agricultural areas (e.g., mountainous regions), a hypothesis that is confirmed in so far as Switzerland's mountainous cantons have higher percentages of organic farmers (BioSuisse, 2022; FiBL, 2022).

Despite all this, it becomes clear in the interviews that the definition of an agroecological practice is still inconclusive. There is some consensus in the literature about what constitutes an agroecological practice (i.e., reducing external inputs, involving farmers knowledge and on-farm experimentation), which is shared in the understanding of key-informants (Van Der Ploeg et al., 2019). Nonetheless, the unclear boundary between agroecological and non-agroecological practices (HLPE, 2019; Van Der Ploeg et al., 2019) is a point of contention for several KI and online survey participants.

5.3.4 Education and training for agroecology

Non-academic education and training is a weak point in the state of agroecology in Switzerland. Organic farming is taught at the cantonal agricultural schools and the professional certificate of "organic farmer" is recognized by the state (Niggli, 2000). Apart from that, very few aspects of agroecology apart from that find their way into the curriculum. A variety of private initiatives offer education and training on agroecological approaches such as permaculture or regenerative farming. However, there are no (non-academic) education and training programs for agroecology in Switzerland.

Learning opportunities

The majority of initiatives are engaged in a variety of learning opportunities. Non-formal adult training, peer-to-peer learning and field visits are most commonly offered. All of these provide a form of co-creation of knowledge, which is essential to an agroecological transition (HLPE, 2019).

The fact that many initiatives outside the realm of traditional research institutions indicate that they are involved in research indicates a broad understanding of the term, including non-formal research centers and on-farm experimentation (Wezel, Goris, et al., 2018). It can also be assumed that there are learning opportunities happening in the daily activities of these initiatives that have not been recorded within the scope of one multiple choice question. Agroecology is a knowledge intensive system and developing knowledge on agroecology is crucial (Biovision Foundation for Ecological Development & IPES-Food, 2020; FAO, 2018). The variety of learning opportunities assessed in this thesis are therefore highly relevant for an agroecological transition.

5.3.5 Agroecology Living labs

Living labs do not seem to be a widely known concept in Switzerland. Central features of living labs are the co-creation of knowledge and the active involvement of different stakeholders, including farmers and researchers (ENoLL, 2017), but an exact definition of an agroecological living lab has not been agreed upon (McPhee et al., 2021). This is reflected in this thesis, where many KI are unclear on what constitutes a living lab. Not all of the initiatives listed by KI as living labs would be considered as such using the ENoLL definition. On the other hand, some projects effectively functioning as living labs may not be using the term in their self-description. As the concept evolves in European research, the diverse examples in this thesis may provide an opportunity to discuss the concept more deeply in the context of agroecology.

A category of living labs in Switzerland, which was not mentioned in the interviews, are ecovillages. There is a network of ecovillages in Switzerland (explicitly referring to themselves as living labs) that consist of people living communally, acquiring land as a cooperative and testing new approaches for an ecological transition (Ecopol, 2023). These ecovillages can be an important contribution to community-level co-creation of knowledge (Balogh et al., 2020)

5.4 Diversity of agroecological initiatives

No previous study has created a general overview of agroecological initiatives in Switzerland. Aiming to categorize agroecological activity as exact as possible, a new aspect of this study is the inclusion of living labs and non-scientific education and training on agroecology. The agroecological initiatives in Switzerland that were identified for this thesis are diverse in many aspects: they can be attributed to all five categories of activity, are located all over the country and cover a wide range of specific topics in their engagement. This subsection discusses the following research questions:

RESEARCH QUESTION

Which agroecological initiatives exist in Switzerland?

How can the initiatives be characterized?

What is their geographical distribution?

5.4.1 Characterization

Activity

The majority of collected and surveyed initiatives are attributed to the category of practice, followed by initiatives in the social movement and science. Education and training as well as living labs make up only a small proportion of total initiatives. Notably, the high numbers of practice initiatives and farmers in the online survey suggest that the existing agroecological scene in the country is actually strongly anchored in practice. This stands in opposition to the literature discussing agroecology as mainly science-based in the European context *and* the perception of key-informants of agroecology as a science first (Gallardo-López et al., 2018; Wezel et al., 2009).

Size

The survey data shows a variety of actors involved in the initiatives and a wide range in the number of people connected by them. Agroecology puts a strong emphasis on local contexts – hence it makes sense that many initiatives do not connect a large amount of people. Nonetheless, the synergies between many small interacting initiatives are significant in forming a strong network. Agroecological farming systems are often small, diverse and labor-intensive (E. Nicholls et al., 2020).

According to Geels & Schot (2007), niche-innovations carried out by small networks of dedicated actors. Geographically separated, innovative initiatives and projects under the umbrella of “agroecology” can be joined and located in a niche that sits within the dominant regime (Anderson et al., 2021). Successful transitions to agroecological systems can start on a farm focusing on input substitution (Mier Y Terán Giménez Cacho et al., 2018). From there, through networks, a scaling out process can happen. A large number of relatively small initiatives is thus a good prerequisite for agroecological transformation.

Funding

Most of the initiatives in this thesis are funded through own funds. About half receive donations and about a third are financed by public funds and/or subsidies. The data in this thesis does not go into detail on the shares and relevance of each type of funding for the initiatives. However, studies for Switzerland have shown that the subsidies paid out by the government go against agroecological goals (Gubler et al., 2020; Knop et al., 2005; Meier et al., 2021). As mentioned by several key-informants, there are ways to fund agroecological projects using existing policy instruments, but no explicit funding for agroecology exists as of yet. A lot of the available funding focuses on the biophysical dimension (ecological production) and less on aspects such as co-creation of knowledge, local food culture or circular economy (Biovision Foundation for Ecological Development & IPES-Food, 2020). Schlöpfer (2018) illustrated significant external costs resulting from agriculture in Switzerland, largely borne by the public.

Research on the true cost of food and agriculture thus outlines pathways to more sustainable money flows in the food system (Schläpfer & Ahmadi, 2023).

The research project AE4EU has created “a snapshot of agroecological funding” in Europe (AE4EU, 2023). The report describes a need for more accessible funding, especially at the local scale and for small initiatives (AE4EU, 2023). This finding is confirmed by many of the KI in Switzerland who describe local projects as best-practice examples of agroecological projects. At the same time, AE4EU also describe the “unequal playing field”, which still makes it easier for large-scale farmers to obtain funding. The same goes for Switzerland, where direct payments are also subsidizing intensive, large-scale agricultural practices (Gubler et al., 2020).

5.4.2 Distribution of initiatives

The distribution of initiatives shows an obviously higher **number** of initiatives in the canton of Zurich compared to the rest of Switzerland. There are several possible explanations for this. In part, this can be attributed to higher information density in that canton (e.g., previous mapping activity by Menzi (2023)). Further, the snowball sampling method relied on the networks and connections of the initial initiatives I identified (Döring & Bortz, 2016, p. 308). The strong local embeddedness of many initiatives means that they may be locally well-connected but not have inter-regional ties. The sampling method may thus have led to a regional bias in the data and the collection of data “bubbles” of initiatives in the same region (Goodman, 1961). Nonetheless, the high number of initiatives in the canton of Zurich hints at the fact that there are most likely more initiatives in other cantons that are not included in this thesis.

When looking at the **density** of initiatives (= initiatives/permanent inhabitant of each canton), the picture changes: it is now alpine cantons (Uri, Obwalden, Appenzell Inner Rhoden and Graubünden) as well as cantons with an urban character (Basel-Stadt, Geneva and Zurich) that stand out. These results go hand in hand with the perception of key-informants regarding regional differences in the development of agroecological initiatives: **urban areas** and **areas with high percentages of certified organic agriculture** are perceived to be more developed. With almost 67% of its agricultural land under organic production, Graubünden is maybe the most illustrative acknowledgement of this (FiBL, 2022). With 40% organic production, Basel-Stadt falls into both categories (urban and organic) at once. The other alpine cantons do not have as high percentages of organic agriculture – their higher share of agroecological initiatives may thus be attributed to the generally difficult circumstances of mountainous agriculture that makes it impossible for production systems to become too intensive (Agrarbericht, 2023a).

Peri-urban areas have been identified as central figures in the transition to more sustainable food systems (Bertran-Vilà et al., 2022; International Forum for Agroecology, 2015; E. Nicholls et al., 2020) 85% of people in Switzerland live in urban areas (statista, 2021). Cities unite a large amount of people. They are the location of many research institutions, connect people with similar interests and have shown to often be centers of innovation (European Commission, 2019a). CSA projects, an exemplary manifestation of agroecology in Switzerland, are also commonly located close to big cities (European CSA Research Group, 2016). Naming urban areas as hotspots of agroecological development in Switzerland thus makes sense.

5.5 Critical reflections

This thesis broaches many different themes within the vast field of agroecology, food and agriculture. I am aware that, as a result, I have not been able to reflect on all themes with the level of detail they may deserve. I therefore hope that this work will function as the base of future research doing exactly that.

A disadvantage of the methods used for this mapping project is the low level of participation by eventual users of the map (Milgroom et al., 2019). The decisions on what was included in the database lay in my hands only. While this ensured very consistent criteria for the in- and exclusion of initiatives, it also means that initiatives that were “out of my sight” have been

missed. No matter how hard I tried to representatively cover all of Switzerland in my work, this thesis inevitably reflects my perspective as a (Swiss-)German speaking, urban student in Zurich. The database will hopefully be used and edited by other people in the future, softening the impact this rigorous “top-down” control by me has had. Going forward, an option will be to cast the net wider by not making a pre-selection of initiatives but asking initiatives to self-identify as agroecological or not.

The selection of key-informants was also inevitably very limited. There are many more experts and relevant people for agroecology in Switzerland. Even though I tried to create a geographically representative sample, the commonly mentioned initiatives in Chapter 4.3 are still heavily skewed towards the canton of Zurich. Further research could therefore aim to also depict areas of Switzerland that may so far be underrepresented in the discussion around agroecology – for example more rural cantons.

Lastly, the strict classification of initiatives into one of five categories (science, practice, social movement, education and training, living lab) does not always reflect the real-life activity of these projects. However, this approach was chosen to reflect the methodology developed for the mapping of agroecology in Europe (Wezel et al., 2023). A common methodology allows the presentation of results that can be compared across the continent – and thus send a stronger, unified signal in the process of further developing agroecology.

6 Conclusions and outlook

6.1 Conclusion

This thesis provides a general overview of the current state of agroecology in Switzerland. By conducting desktop research, surveying initiatives and interviewing experts on the topic, a picture of agroecological activity in Switzerland emerged. The thesis analyzes these activities according to the five categories of science, practice, social movement, education and training as well as living labs.

More than 600 agroecological initiatives all over Switzerland were identified. 125 initiatives shared information about their activity in an online survey. Fourteen key-informants discussed their views of the state of agroecology in Switzerland. The combined results show that recognition of the concept of agroecology is not widespread in Switzerland, but a wide variety of initiatives are already actively contributing to an agroecological transition without explicitly using the term. Switzerland is a pioneer in certain aspects of agroecology – home to Europe's first CSA and some of the initiators of the organic movement. In other aspects, there is still a lot of work to do – in particular when it comes to the more transformative aspects of agroecology and designing agricultural policy for sustainable food systems.

Nonetheless, the initiatives identified in the course of this thesis showcase the wide variety of agroecological activity that is already ongoing in Switzerland. As a globally well-connected country rich in resources, there is definitely potential for Switzerland to work towards an agroecological transformation of its food system. What it will need is the continuing effort of the countless initiatives and people already working towards this goal and the strengthening of networks – on all scales.

6.2 Outlook and future research

The primary objective of this project was building evidence of agroecological activity in Switzerland that can support the networking between actors and inspire people to join the movement (Milgroom et al., 2019).

As a project focusing on a *general* overview of a vast field, this thesis has only scratched the surface of many topics related to the state of agroecology in Switzerland. It will be very insightful to dive deeper into many of the topics addressed here: How is the funding of these initiatives composed? Which established networks are already connecting them? How are policies on agroecology affecting the initiatives? Etc.

Another open question is consolidating agroecology and agreeing on a common definition. This is a topic which is being addressed by N. Bossard in his master thesis, by the members of Agroecology works! as part of their organization development, and by many other actors across the Swiss agroecology landscape.

The database will be made available to the association Agroecology Works! to support the important work they are doing for agroecology in Switzerland. I hope it will be a useful resource to expand upon.

The purpose of this study was identifying agroecological initiatives. The subtleties of initiatives' agroecological performance could be assessed in a further step, using methodology such as the Business Agroecology Criteria Tool (B-ACT) (Biovision Foundation, 2023), or the Tool for Agroecology Performance Evaluation (TAPE) (FAO, 2019). Agroecological performance assessments of this kind have already been conducted in Switzerland and could be expanded using the initiatives identified in this thesis (Biovision, 2023; Gilgen et al., 2023).

A central aim in the identification of further agroecological initiatives should be the strengthening of network ties between them – this is the best way to ensure the establishment of a strong agroecological movement that connects a wide variety of actors. At the same time, we must not forget the incredible work that all 609 initiatives identified in this thesis are already doing – I strongly encourage the reader to have a look at the initiatives mentioned in this thesis and also keep your eyes open for any agroecological activity you may encounter in your daily life. There is evidently already a lot going on.

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8 Appendix

Appendix A: Agroecology related keywords used in desktop research

The list of keywords was initially established in German and then translated to French and Italian. Keywords have been translated to English here for comprehensibility. The German term is provided where there is no direct translation.

Agrobiodiversity	Grassroots
Agroecosystem	Humus
Agroforestry	Indigenous
Agrotourism	Local store (Bioladen)
Applied research	Mischkulturen
Association	MSc
Biodynamic (Demeter)	No-till
BSc	Ökoregion
Community garden	Online platform
Cooperative	Organic farming
Course	Organic market
CSA (Solawi, ACP)	Pedagogy
Direct marketing	Permaculture
Ecovillage	Reallabor
Education	Regenerative
Farm to table	Slow food
Farm-to-table	Small-scale farming (Kleinbauern)
Farmer's market	Soil
Food saving	Soil science
Food sovereignty	Sustainable
Food system	Trademark or certification
Food waste	Traditional
Foundation	Traditional variety
Gastronomy	Training
“Gemüseabo”	

Appendix B: Online survey

Part I: General information about the initiative

1. What is the name of your initiative?
2. Contact E-mail
3. Website
4. Which canton is the initiative located in?
If you don't have a specific place, choose CH at the bottom. If you are located in Liechtenstein, choose LI.
5. Please pinpoint the location of the initiative on the map.
6. When was the initiative established?
Write down the year.
7. How many people does the initiative connect?
"Connect" can mean employees, members, customers etc. Choose the definition that is most relevant to you.
 - a. Please note the definition of "people you connect" that you used in the previous question.
8. What are the types of actors involved in the initiative?
 - ◇ Farmers
 - ◇ Researchers
 - ◇ Retailers
 - ◇ Consumers and citizens
 - ◇ Advisors and technical experts
 - ◇ Educators
 - ◇ Policy makers
 - ◇ Public authorities
 - ◇ Civil society organisations
 - ◇ Farmers' associations
 - ◇ Other (Specify below)
 - ◇ I don't know
9. Do you have any type of certification?
 - ◇ Yes
 - ◇ No
 - ◇ Not applicable to the initiative
 - ◇ I don't know
 - a. If yes, which one?
 - b. If no, can you explain why not?
 - c. Do you have other comments about certification?
10. How is your initiative funded?
 - ◇ Own fund
 - ◇ Public fund
 - ◇ Donations
 - ◇ Subsidies
 - ◇ Other (please specify)
 - ◇ Not applicable
 - ◇ I don't know

11. Which of the following learning opportunities does the initiative offer?

- ◇ Non-formal training
- ◇ Peer to peer learning
- ◇ Field visits
- ◇ Research
- ◇ Advisory services
- ◇ Vocational training
- ◇ Tertiary education
- ◇ other (please specify)
- ◇ Not applicable
- ◇ I don't know

12. What is the MAIN category of activity that your initiative is active in?

Choose the one that is most fitting.

- ◇ Science
- ◇ Social movement
- ◇ Practice
- ◇ Living lab
- ◇ Education and training

13. Is there a SECOND category of activity that is important to describe the work of your initiative? If yes, which one?

- ◇ Science
- ◇ Social movement
- ◇ Practice
- ◇ Living lab
- ◇ Education and training

14. What specific topic(s) does the initiative work on?

Please write down 1-4 key words that describe your activity.

Part II: Perception of agroecology

1. Are you familiar with the term "agroecology" and its definition?

- ◇ Yes
- ◇ No
- ◇ I don't know
- ◇ Other (please specify)

2. Do you use the term "agroecology" to describe your activity?

- ◇ Yes
- ◇ No
- ◇ I don't know

a. If yes, how?

b. If no, what other concept(s) do you use?

3. Do you think the concept of agroecology is important for the Swiss food system?
0 – not at all, 3 – yes, to a certain extent 5 – yes, definitely



4. Add comments on the relevance of agroecology for the Swiss food system here:
5. Finally: Do you have any general comments?

Part III: Inspiration for transformation

This question aims to find inspirational initiatives in Switzerland that are already working on transforming the food system.

1. Many people and projects are already working on a transformation of the food system – is there a project that particularly inspires you?
This question will be used for a different master thesis on narratives in agroecology.

Part IV: Information and consent

A goal of this survey is to create an inventory of agroecological initiatives in Switzerland including their name, location, website and category of activity. A second goal is to analyze the general state of agroecology in Switzerland. For this, any other information provided in this survey will be analyzed anonymously and not linked to specific initiatives.

1. Do you agree that the following information about your initiative will appear in a database on agroecology in Switzerland: 1) name, 2) contact, 3) website, 4) location and 5) category of activity?
The inventory has the aim of strengthening the connection between initiatives. It will only be available to ETH researchers in the group of Prof. Johanna Jacobi and the board of Agroecology works!
- ◇ Yes
 - ◇ No
 - ◇ Other (please specify)
- a. Comment about consent:
2. I agree that the rest of the information I have provided in this survey will be used for anonymous data evaluation.
Any information except for 1) name of the initiative, 2) contact e-mail, 3) website and 4) location (canton) will only be evaluated anonymously and will not be traced back to individual initiatives.
- ◇ OK
3. I would like to be informed about the results of this study.
- ◇ OK

Appendix C: Interview guideline for key-informant interviews

The semi-structured interview guideline was developed by Agroecology Europe for the project AE4EU and used for this thesis with the organization's permission (Wezel et al., 2023).

Interview – Preamble

1. Do you know the term “agroecology” – and do you currently use it in your activity? (very often/often/rarely/never)

If yes,

2. How do you define or describe agroecology in your own words? (if needed: Can you give one or two examples to illustrate your thinking?)

If no,

please mention related and linked words (see below) - if needed only, you can explain our understanding and definition of agroecology. Nevertheless, you shall avoid starting by this in order not to narrow the perception of the interviewee.

- Area: Organic
Keywords: Organic Farming, Organic Horticulture, Organic Livestock, Biodynamic
- Area: Agroecology
Keywords: Agroecology, Agroecological Farming, ecological farming, peasant/traditional agriculture, (Ecology)
- Area: Agroforestry
Keywords: Agroforestry, Silvopasture, Silvoarable
- Area: Territories and food system
Keywords: Food Systems, Territorial Food Systems, Food Sovereignty, Rural Development, Supply chain/value chain, Food Justice
- Area: Regenerative Farming
Keywords: Permaculture, Regenerative Farming, Regenerative Agriculture

Interview - Part 1: Initiatives in the country

You should try to gather information on initiatives in the pillars: Practice, Science, Movement, Living labs, and Education and Training.

1. Could you first indicate different initiatives in agroecology in Switzerland?
2. Are there some initiatives which include Living Labs and/or practical implementation of agroecological research?
3. Are there involved research institutions and research programs related to agroecology?
4. Are there any agroecological education and training programs in agroecology or strongly related to agroecology in Switzerland?
5. Are there other agroecology related examples/cases/initiatives not mentioned yet, for example, movements for food sovereignty, bottom-up initiatives such as CSA (community agriculture systems) or farmer's markets, collaboration between farmers and researchers?
6. And finally, among the examples and initiatives you provided, are there some with transnational/international cooperation (in which more than one European country is involved)?

Interview - Part 2: Agroecology in the country

1. How would you describe the present state of agroecology in Switzerland?
2. How much do you think agroecology is known and recognized in Switzerland (*well recognized/ enough recognized/ not very much recognized/ not at all recognized*)?
 - a. By which stakeholder?
 - b. Why?
3. How much do you think agroecology is known and recognized in Switzerland at the decision making level? (*well recognized/ enough recognized/ not very much recognized/ not at all recognized*)
 - a. Why?
 - b. Could you name the decision making stakeholders?
4. Would you say that agroecological practices are well implemented in Switzerland (*well implemented/ enough implemented/ not very much implemented/ not at all implemented*)?
 - a. Could you provide examples of the 2-3 main agroecological practices implemented? [*note for the interviewer: have in mind the difference between an approach (i.e.: permaculture, regenerative agriculture etc.) and the agroecological practices (i.e.: no tillage, organic fertilization etc.), but do not discuss with the interviewee*]
5. Are there any policies in Switzerland that help the implementation of agroecology?
 - a. Do they specifically focus on agroecology?
 - b. At which level (local/national/regional...)?
 - c. Can you provide examples?
6. Are there some regions in Switzerland in which more agroecological initiatives have arisen?
 - a. If yes, do you have an explanation for this?
7. What are the barriers for agroecological development in Switzerland, in your opinion?
8. What do you think are the future perspectives of and opportunities for agroecology in Switzerland?
9. Last question: do you have other points or aspects that you want to mention?

Appendix D: Code system for qualitative analysis

List of codes	Frequency
Codesystem	1764
HLPE	0
participation	5
land and natural resource governance	6
connectivity	21
fairness	9
social values and diets	13
co-creation of knowledge	12
economic diversification	14
synergy	8
biodiversity	15
animal health	7
soil health	14
input reduction	7
recycling	9
GLIESSMANN	0
(lvl 0)	0
lvl 5 - build	1
lvl 4 - reconnect	5
lvl 3 - redesign	16
lvl 2 - substitution	20
lvl 1 - efficiency	4
survey_perception	0
importance	0
very	39
essential/inevitable	11
holistic	6
transformative	6
ambivalent	12
not at all	1

other terms	0
soil	2
economy	4
regenerative	8
solidarity agriculture	8
circularity	2
urban agriculture	3
sustainable	5
biodiversity	5
organic	13
permaculture	12
specific topics	0
AGROECOSYSTEM LEVEL	0
type of approach or farming system	5
organic	9
agroforestry	4
permaculture	15
CSA	17
syntropic	1
urban	4
regenerative	9
type of product	20
biodiversity	10
FOOD SYSTEM LEVEL	0
ECONOMIC	2
food supply chain	10
ECOLOGICAL	3
food waste	4
climate	5
SOCIAL	6
nutrition	5

consumers	12
education/knowledge	17
local	6
POLITICAL	11
sustainability	5
certification	0
don't HAVE it (but kind of do)	0
in progress	5
farm but not initiative certified	6
don't NEED it (not applicable)	0
uncertifiable	18
don't WANT it (but could have it)	0
not important/central	16
too small	3
don't LIKE it (general critique)	1
too expensive	4
administrative reason	1
not flexible enough	1
Activity categories	0
transnational/international	14
education and training	28
INFORMAL/PRIVATE EDUCATION	19
FARMER SCHOOLS	16
con	11
pro	4
weak point	4
practice	51

methods	0
animal production	4
soil (cover)	10
crop rotation	3
agroforestry	10
plant protection	6
biodiversity	1
companion planting	1
approaches	0
microferme	1
IP	5
permaculture	1
regenerative	2
local value chains	3
direct payments	5
living lab	31
criticism	18
uncertainty	10
project scale	0
cantonal	3
local	8
top-down vs. bottom-up	13
science/research	11
characteristics	0
present everywhere	2
not present	3
applied research	5
tertiary education	16
movement	21
actors	0
international cooperation	6

certification	4
CSA/Solawi	19
small group of people/small projects (+)	16
topics	0
network and synergies	4
(fair) trade	7
political	2
agriculture paysanne	4
timeline	16
organic	67
future perspective/opportunities	59
market conditions	4
geographic conditions	5
ressources	1
political system	26
consumers and producers	41
other	7
networks	3
technology	2
barriers	64
inertia of change	16
market	31
path dependency	5

power and influence	39
knowledge and research	6
discourse and narrative	10
social	27
political system/policy	22
other	8
unclear definition	3
regional differences	43
policy	72
ÖLN	5
known and recognized	43
state of agroecology	35
preamble	0
definition of agroecology	32
all 3 pillars	6
social movement	5
practice	10
science	6
HLPE principles/FAO elements	6
Gliessmann	3
food system	6
agroecosystem	10
transformative	2
definition unclear	6
knowing the term "agroecology"	19

Appendix E: List of initiatives

Initiative ³¹	Website	Canton
LIVING LAB		
1203 Graines	www.1203graines.ch	GE
AGFF / ADCF / APF	www.agff.ch www.eagff.ch	CH
Bildungs- und Schulgärten Schweiz	www.schulgarten.ch	SO
Biovision - Department Switzerland - Programm "agroecological transformation of the Swiss food system"	https://www.biovision.ch/projekt/transformation-ernaehrungssystem-schweiz/	ZH
Cuore Verde	https://permaculturecuoreverde.wordpress.com	VD
FRUCTUS	www.fructus.ch	CH
Im Haselhain	www.haselhain.org	BE
Institut für Umwelt und Natürliche Ressourcen (ZHAW)		ZH
Kompetenzplattform Permakultur-Landwirtschaft	https://permakultur-landwirtschaft.org/	BE
Regenerativ Schweiz	www.regenerativ.ch	BE
Sustainable Development Solutions Network (SDSN) Switzerland	www.sdsn.ch	CH
Verein Agricultura Regeneratio	www.agricultura-regeneratio.ch	CH
Agroökologische Nachhaltigkeitberatung	www.agraroekologie.ch	CH
Balmeggberg	www.balmeggberg.ch	BE
Biohof Las Sorts/ Bergkartoffeln aus dem Albulatal	www.lasorts.ch www.bergkartoffeln.ch	CH
Comment piloter la transition vers l'agro-écologie de manière participative	www.uniterre.ch https://idee21.ch/de/	CH
Herbstzeitlose bzw. Bauernhof Obermettlen	www.herbst-zeitlose.ch www.obermettlen.com	LU
intakt	www.intakt.swiss	CH
Klimaschutz durch Humusaufbau	https://www.baselland.ch/politik-und-behorden/direktionen/volkswirtschafts-und-gesundheitsdirektion/landw-zentrum-ebenrain/landwirtschaft/klimaschutz-durch-humusaufbau	BL
ortoloco - die Hofkooperative im Fondli	www.ortoloco.ch	ZH
SlowGrow	www.slowgrow.ch	ZH
StarTerre	www.starterre.ch	GE
Terrasses sans Frontières	www.atsf.ch	GE
ValueNet		LU
Verein DasProvisorium	www.dasprovisorium.ch	ZH
wärmepumpe	www.faessleralate.ch	CH
PRACTICE		
AGRICO Genossenschaft	www.birsmatthof.ch	BL
Agro- et vitiforesterie	www.mermiere.ch	GE
ArboThévoz	www.arbothevoz.ch	FR
Association Rage de Vert	www.ragedevert.ch	NE
Associazione Lortobio	www.lortobio.ch	CH

³¹ The main categories assigned here correspond to the self-attribution of initiatives in the online survey.

Bachmattlihof Selbsterntegarten	www.bachmattlihof.ch	SZ
Biohof Heimenhaus	www.heimenhaus.ch	BE
Cooperativa Seminterra	www.seminterra.ch	TI
DasPure AG	www.daspure.ch	ZH
Demeter	www.demeter.ch	CH
Familyfarm	www.familyfarm.ch	TG
Farngut	www.farngut.ch	BE
Ferme de Budé Sàrl	www.ferme-de-bude.ch	GE
Ferme de Rovéréaz Sàrl	rovereaz.ch	VD
Fourchette verte	www.fourchetteverte.ch	CH
Gagygnole SA	www.gagygnole.ch	BE
Genossenschaft Gran Alpin	www.granalpin.ch	GR
gfellerbio	www.gfellerbio.ch	VD
Glück-Hof	www.glueck-hof.ch	AG
Gmüeser Hallwil	www.gmüeser.ch	AG
Güter Foodcoop	https://www.queter.be/	BE
Hochstamm Liestal	www.hochstamm-liestal.ch	BL
Hof Rinderbrunnen	www.rinderbrunnen.ch	ZH
HofLabor	www.hoflabor.ch	ZH
Hostet-Elfenau	www.hostet-elfenau.ch	BE
Huebhof, Solawi Schwamendingen	www.huebhof.org	ZH
imChlee Trubschachen	http://imchlee.ch/	BE
Klimaneutrale Landwirtschaft Graubünden	www.klimabauern.ch	GR
Klimawochen	www.uster.ch/klimawochen	ZH
Kulturlokal Rank und Restaurant Rechberg 1837	https://amrank.ch https://rechberg1837.com/en/	ZH
Label Fait Maison	www.labelfaitmaison.ch	CH
Le Pain du Jardin	www.lepaindujardin.ch	GE
Le Panier Bio à Deux Roues	www.p2r.ch	VD
Les abeilles des Pâquerettes		VD
Les paniers de la Mule	www.lamule.ch	VD
Les Potagers de Gaia	www.potagersdegaia.ch	GE
Microferme "Au Ptit Marché"		FR
Minga vo Meile	www.minga.ch	ZH
NaturGut Katzhof	www.katzhof.ch	LU
Nusseria (Haselnusshof Mettmenstetten)	www.nusseria.ch	ZH
PRE Genuss aus Stadt und Land	www.ausstadtundland.ch	BL
Pura Verdura	https://www.puraverdura.ch/	ZH
Radiesli	www.radiesli.org	BE
Regenerative Landwirtschaft	www.oberewanne.ch	BL
Semences de Pays (association)	www.semencesdepays.ch	GE
Semenza Retica	www.semenzaretica.ch	GR
solila Eulenhof	www.solila.ch	AG
STRAUSS BIOAGRIKULTUR	www.bioagrikultur.bio	ZH
TaPatate!	www.tapatate.ch	FR

Umami AG	www.eat-umami.ch	ZH
Verein agrikultura	https://terrabc.org/	AG
Verein Hof Narr	www.hof-narr.ch	ZH
Wheycation (Lokalgenuss AG)	www.wheycation.ch	SG
SCIENCE		
Agroecological Transitions Group	https://agroecological-transitions.ethz.ch/	ZH
CEDD-Agro-Eco-Clim	https://www.unine.ch/unine/home/recherche/centres-de-recherche/cedd-agro-eco-clim.html	JU
Functional biodiversity	https://www.hesge.ch/hepia/en/laboratoire/entomology-laboratory	GE
Getreidezüchtung Peter Kunz	www.gzpk.ch	CH
Hochschule für Agrar-, Forst- und Lebensmittelwissenschaften HAFL	https://www.bfh.ch/permakultur	BE
SOCIAL MOVEMENT		
Agroecology Works!	https://agroecologyworks.ch/de	CH
Association Chailly 2030	www.chailly2030.ch	VD
Bioflix	www.bioflix.ch	BS
Biohof Horbermatt	www.horbermatt.ch	BE
bioverita	www.bioverita.ch	BE
Crowd Container AG	www.crowdcontainer.ch	CH
Ernährungsforum Zürich	https://ernaehrungsforum-zueri.ch	ZH
EssWaldLand	https://esswaldland.ch/	BE
Faire Milch Säuliamt	www.di-fair-milch.ch	ZH
Feuer&Bohne	www.feuerundbohne.ch	SO
Freudental for Future	www.Freudental.ch	SH
Genossenschaft GartenBerg	www.gartenberg.ch	AG
Gmüesesel	www.gmüesesel.ch	BE
Kleinbauern-Vereinigung	www.kleinbauern.ch	BE
Koopernikus	https://koopernikus.ch	ZH
Küssnachter Samschtig Märt	www.samschtigmärt.ch	SZ
Madame Frigo	www.madamefrigo.ch	CH
meh als gmües	mehalsgmues.ch	ZH
MEZZOGIORNO franchising	www.mezzogiorno.bio	CH
Mouvement pour une agriculture paysanne et citoyenne	www.MAPC-GE.ch	GE
Permakultur jetzt!	www.permakultur-jetzt.ch	BE
Posamenter, Obst ausschliesslich von Hochstamm-bäumen aus dem Tafeljura	www.posamenter.ch	BL
Progetto Fondazione per la Rinascita di Ces	www.cesnet.ch	TI
Schweizer Allianz Gentechfrei SAG	www.gentechfrei.ch	ZH
Solawi Halde	www.solawi-halde.ch	SZ
SWISSAID	www.swissaid.ch	CH
Technikum Urbane Agrarökologie	www.urbaneagraroekologie.ch	ZH
Urban Agriculture Basel	https://www.urbanagriculturebasel.ch/	BS
WIDE Switzerland AG FairFood Feministisch	https://wide-switzerland.ch	CH
Zolawi	www.zolawi.ch	ZH