AGROECOLOGY IN TÜRKİYE: IDENTIFYING THE DIVERSE DEFINITIONS, PERCEPTIONS AND DISCOURSES

by

İpek Ronahi Gündüz

B.Sc. in Economics, Middle East Technical University, 2020

Submitted to the Institute of Environmental Sciences

in partial fulfillment of the requirements for the degree of

Master of Science

in

Environmental Sciences

Boğaziçi University

2024

ACKNOWLEDGEMENTS

First and foremost, I would like to express my deepest gratitude to my thesis supervisor, Assoc. Prof. Dr. Pınar Ertör-Akyazı, for her encouragement and guidance throughout this thesis work. It has been an honor to be her student, and her mentorship has been invaluable to me. I am also grateful to my committee members, Assoc. Prof. Dr. Münis Seven Ağır and Assist. Prof. Dr. Cem İskender Aydın, for their critical contributions and feedback.

I am indebted to Prof. Dr. Gökhan Özertan for his support and valuable contributions to my academic journey. I would also like to acknowledge the Scientific and Technological Research Council of Türkiye for granting me a graduate scholarship and funding the research project AGRICOMPET: Governing the Agri-Food Supply Chain (No: 121N200).

I am thankful to the Heinrich Böll Foundation Türkiye for their scholarship and support for this thesis, and to the Utrecht Network for providing me with the Young Researcher Grant, which allowed me to embark on my first international academic experience.

My heartfelt thanks go to my dear friends who have made this journey unforgettable. Thank you, Hava, for being my rock; Feyza and Barış, for all the celebrations—you are truly the best Ankara has to offer. I also want to thank Bilge for turning the toughest moments into hilarious memories; Irmak, for the soothing conversations and unmatched kindness; and Müge, for all the new experiences and incredible food; you have made my years at Boğaziçi truly worth remembering. Finally, to my dear friends from the office, Reza, Cenk, and İzel—thank you for all the coffee, conversations, and pep talks.

I am deeply grateful to my mother, Sema Kılınçarslan, for her unwavering support and guidance throughout my life, and to Emirali Türkmen, for providing me with an endless supply of books and for the enlightening and enjoyable conversations we shared. This thesis would not have been possible without their support.

ABSTRACT

AGROECOLOGY IN TÜRKİYE: IDENTIFYING THE DIVERSE DEFINITIONS, PERCEPTIONS AND DISCOURSES

Scientific and public attention to agroecology is rising given the accelerating adverse social and ecological consequences of industrial agriculture. Defined as a science, a practice and a social movement, agroecology is conceptualized differently by various stakeholders. Recently, a growing number of stakeholders started to promote agroecology in Türkiye. However, the different understandings and definitions adopted by these actors lead to confusion and a risk of cooptation by the dominant actors of the corporate food regime. Hence, this study aimed to identify the different perceptions, definitions, and discourses surrounding agroecology in Türkiye to capture its potential and limitations. The study employed a mixed-method approach, via participant observation, an online survey with 59 participants, and follow-up in-depth interviews. Exploratory Factor Analysis used to analyze the survey revealed three distinct discourses on agroecology in Türkiye: Transformative, Reformist, and Laissez-Faire Approach to Agroecology. Accordingly, Transformative Agroecology is a discourse concerned with alternatives to the corporate food regime with a focus on justice and social movements. In contrast, the Laissez-Faire approach envisions an agroecology within the boundaries of the corporate agri-food regime prioritizing markets without any government intervention. Reformist Agroecology offers a middle way based on gradual reforms for fine-tuning industrial agriculture and improving its social and ecological performance. The study cautions against the emerging threat of co-optation of agroecology by mainstream actors of the corporate agri-food regime via the discourses of Laissez-Faire and Reformist Agroecology.

ÖZET

TÜRKİYE'DE AGROEKOLOJİ: FARKLI TANIMLAR, ALGILAR VE SÖYLEMLERİN BELİRLENMESİ

Endüstriyel tarımın hızla artan olumsuz sosyal ve ekolojik etkileri sonucunda, agroekolojiye yönelik bilimsel ve toplumsal ilgi de hızla artmaktadır. Bir bilim, uygulama ve toplumsal hareket olarak tanımlanabilen agroekoloji, çeşitli paydaşlar tarafından farklı şekillerde kavramsallaştırılmaktadır. Son zamanlarda, Türkiye'de giderek artan sayıda aktör agroekolojiyi önceliklendirmeye başlamıştır. Ancak, bu aktörler tarafından benimsenen farklı anlayışlar ve tanımlar, kafa karışıklığına ve şirket gıda rejiminin baskın aktörleri tarafından bağlamından koparılarak yeniden tanımlanması riskine yol açmaktadır. Bu nedenle, bu çalışma, Türkiye'de agroekolojiye ilişkin farklı algıları, tanımları ve söylemleri belirlemeyi, böylece agroekolojinin potansiyelini ve sınırlamalarını ortaya çıkarmayı amaçlamıştır. Çalışma, katılımcı gözlem, 59 katılımcıyla gerçekleştirilen çevrimiçi anket ve takip eden derinlemesine görüşmeler yoluyla karma yöntem yaklaşımını kullanmıştır. Anketi analiz etmek için kullanılan Keşifsel Faktör Analizi, Türkiye'de agroekolojiye dair üç farklı söylem olduğunu ortaya koymuştur: Dönüştürücü, Reformist ve Laissez-Faire Yaklaşım. Buna göre, Dönüştürücü Agroekoloji, adalet ve toplumsal hareketlere odaklanarak şirket gıda rejimine alternatif teşkil eden bir söylemdir. Buna karşılık, Laissez-Faire yaklaşımı, piyasaları önceliklendiren ve herhangi bir devlet müdahalesi olmaksızın şirket gıda rejimi sınırları içinde bir agroekoloji öngörmektedir. Reformist Agroekoloji ise, endüstriyel tarımı ince müdahalelerle iyileştirmeyi ve sosyal ve ekolojik performansını artırmayı hedefleyen kademeli reformlara dayalı bir orta yol sunmaktadır. Çalışma, şirket gıda rejiminin ana akım aktörleri tarafından Laissez-Faire ve Reformist söylemler aracılığıyla agroekolojinin bağlamından koparılarak farklı amaçlarla yeniden tanımlanması tehdidine karşı uyarmaktadır.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS iii

ABSTRACT iv

ÖZET v

TABLE OF CONTENTS vi

LIST OF FIGURES viii

LIST OF TABLES ix

LIST OF ABBREVIATIONS x

1. INTRODUCTION 1

2. LITERATURE REVIEW 5

2.1. Food Regime Theory 5

2.2. Food Sovereignty 9

2.3. Agroecology 12

2.3.1. History of Agroecology 13

2.3.2. Different Agroecologies: Diverse Understandings and Discourses of Agroecology 16

2.4. Emergence of Agroecology in Türkiye 21

3. METHODOLOGY 26

3.1. Field Visits and Participant Observation 26

3.2. In-Depth Interviews and Survey Design 27

3.3. Data Analysis 29

4. RESULTS 32

4.1 Descriptive Results of the Survey 32

4.2 Analysis of Module 1 36

4.3. Exploratory Factor Analysis for Module 2 46

4.4 . Semi Structured In-Depth Interviews 53

5. DISCUSSION 55

5.1 The Laissez-Faire Approach to Agroecology 56

5.2. Transformative Agroecology 57

5.3. Reformist Agroecology 61

6. CONCLUSION 67

REFERENCES 69

APPENDIX A: Exploratory Factor Analysis 81

APPENDIX B: Survey Questions 88

APPENDIX C: Interview Questions 93

APPENDIX D: Survey Questions in Turkish 95

APPENDIX E: Interview Questions in Turkish 102

LIST OF FIGURES

Figure 2.1: Agroecology: An Evolving Concept 15

Figure 2.2: The Map of Agroecology Initiatives in Turkiye.....24

Figure 4.1: Who is responsible for ensuring sustainability in the agricultural sector? 41

Figure 4.2: How is agroecology understood?.....42

Figure 4.3. How is food sovereignty understood? 44

Figure 4.4: Do you think food sovereignty and agroecology are related? 45

LIST OF TABLES

Table 3.1. Survey and Interview Participant Information 28

Table 4.1. Demographics of the Survey Participants 33

Table 4.2. Descriptive Statistics of Module 1 Data 34

Table 4.3. Descriptive Results of Module 2 Data 36

Table 4.4. Seven Question Categories in Module 2 of the Survey 47

Table 4.5. Pattern Matrix 48

LIST OF ABBREVIATIONS

Abbreviation	Explanation
ARIP	Agrarian Reform Implementation Project
BÜKOOP	Boğaziçi University Members Consumer Cooperative
ÇİFTÇİ-SEN	Farmer's Union
DÜRTÜK	Resisting Producer and Consumer Collective
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
IMF	International Monetary Fund
IPC	International Planning Committee for Food Sovereignty
JDP	Justice and Development Party
UN	United Nations
USDA	United States Department of Agriculture
WTO	World Trade Organization

1. INTRODUCTION

The last century was subject to significant developments in agriculture. The Green Revolution, advancements in agricultural technologies, the introduction of genetically modified (GM) seeds, and the rise of mega agricultural and pharmaceutical companies -which produce hybrid seeds and agrochemicals- that now dominate the agricultural landscape have marked the beginning of a new era. While Green Revolution was able to raise agricultural production, it was accompanied by dispossession of farmers, depeasantization, mass migration to urban areas, and increased food insecurity (Araghi, 2009; Patel, 2013). The negative consequences of Green Revolution were not limited to social or economic challenges. From the environmental perspective, industrial agricultural practices that dominated the agricultural landscape after the Green Revolution heavily contribute to land degradation and climate change (Bernard & Lux, 2017). Moreover, the use of agrochemicals (i.e. synthetic fertilizers, pesticides, herbicides or biocides in general), intensive ploughing and irrigation, and large-scale monocultures degrade the soil, ground and surface waters, lead to erosion and salinisation, as well as biodiversity losses (Bernard & Lux, 2017). Recent efforts to mitigate some of these adverse environmental impacts mainly focus on renewable energy projects, organic agriculture, carbon-neutral and carbon-negative agricultural activities and agroecology (Paul et al., 2009; Yıldız, 2021).

Meanwhile, food and agriculture have continued to play a crucial role in international relations and the global political economy, serving as powerful tools for capital accumulation and exertion of power (McMichael, 2009). Arguably, this process is accompanied by the deterioration or complete loss of indigenous and rural communities' cultures and common resources, increasing unrest and the rise in inequality (Holt Gimenez & Shattuck, 2011). Critiques of the Green Revolution therefore argue that it is not only ecological sustainability that is at risk with the new order of the global agrifood relations; instead, it is also the economic and social sustainability that are being compromised (Patel, 2012). Accordingly, as capitalist and colonial forces shaped the global food and agricultural order, bottom-up counter-movements emerged aiming at defending the livelihoods, the nature, traditions, and cultures of farmers and peasants, especially in the Global South. Several social movements including those of peasants, farmers, fisher-folk, indigenous peoples, and pastoralists started to organize under the concept of food sovereignty, in order to protect their land, autonomy, and cultural heritage (Nyéléni, 2007; Rosset & Martínez-Torres, 2014). These diverse groups try to resist the spread of industrial agriculture and fight to preserve sustainable agricultural practices that align with their traditional ways of life. Their struggle underscores the ongoing tension between large-scale

agricultural enterprises driven by profit and the smaller, community-based systems focused on sustainability, justice, and self-determination (Nyéléni, 2007; Rosset & Martínez-Torres, 2014) Agroecology, in this struggle, emerged as a key pillar and an alternative to industrial food production (de Souza, 2022; IPC, 2015). Agroecology embraces more environmentally and socially conscious approaches to agriculture, focusing on the socio-ecological sustainability (Altieri, 1995). Altieri (1995) describes this as a "normative or prescriptive use of agroecology," as it encompasses societal and production-related features that extend beyond the agricultural field (p. 4). Specifically, agroecology is grounded in the traditional agriculture, rooted in small-scale farms, and relies on a holistic agroecosystem management instead of the use of external inputs; it is knowledge-intensive and, rather than supporting large-scale monocultures, it promotes highly diversified farms (Altieri, 1995; Gliessman, 2007; Holt-Giménez, 2006; Holt-Giménez & Altieri, 2012). The concept of agroecology is understood and applied in various ways, leading to debates over its definitions. While some view it as a crucial step for sustainable and just food systems, others criticize its effectiveness in addressing complex food system issues (Carlile & Garnett, 2021).

Given his context, agroecology has received much attention not only from social movements and civil society organizations, but also from international institutions, nation states, and agribusinesses in an effort to address some of the problems caused by the industrial agriculture (Levidow, 2015; Rivera-Ferre, 2018). Usually defined as a science, a practice, and a social movement by different actors, different perceptions and definitions to agroecology have emerged, and the term became heavily contested. In 2018, the Agroecology Info Pool identified 23 different definitions of agroecology, each varying in scales, scopes, and focuses (Bell & Bellon, 2021). Many scholars focused on this contestation, identifying various understandings, discourses, narratives, and perceptions (Bellwood-Howard & Ripoll, 2020; Espinosa-García et al., 2024; Giraldo & Rosset, 2021, 2021, 2023; Gonzalez De Molina, 2013; Holt-Giménez & Altieri, 2012; Levidow, 2015; Rivera-Ferre, 2018). This diversity reflects the complexity and multifaceted nature of agroecology as it intersects with different cultural, social, and political contexts.

Similarly, in Türkiye, a growing number of actors started to give substantial efforts for promoting agroecology. These include non-governmental organizations, civil society organizations, social movements, local governments, ministries, and international organizations and farmers and peasants. Each of these groups uses the term agroecology in their projects, policies, actions, and strategies, however their interpretation varies tremendously. Agroecology in Türkiye therefore started to function as a free-floating signifier, adapting to the definitions assigned to it rather than having a single, fixed meaning. In addition to the lack of consensus on its definition, to my knowledge, no

prior studies have explored the range of different understanding and definitions of agroecology in Türkiye. Hence, the present study aims to fill this gap in the academic literature by identifying the different definitions, perceptions, and discourses of agroecology in Türkiye. More specifically, my research questions are:

i) How is agroecology perceived and defined in Türkiye, and
ii) What are the main discourses surrounding agroecology in the country?

To answer these questions, the present study employs a mixed-methods approach, leveraging the strengths of both qualitative and quantitative techniques to achieve a comprehensive understanding of agroecology. The research involves an extensive review of both academic and gray literature, complemented by field visits and participant observation to gather firsthand insights. Subsequently, an online survey was carried out with participants from a variety of stakeholder groups that were invited to complete the survey anonymously. This survey comprised three main modules: the first module was designed to gather general views and beliefs about sustainability in agriculture in general and existing challenges within the agricultural sector. This section specifically aimed to gauge participants' views on industrial agriculture, agroecology, and food sovereignty by soliciting their personal opinions and comments. As the term agroecology is relatively novel for the country, the aim was to reach participants that either knew or have heard of agroecology, or at least, without calling it agroecology, they have been engaged in ecological production or associated policy-making in the country.

The second module of the survey was specifically designed to gather responses regarding the seven categories of definitions of agroecology present in the academic literature. This second module therefore constituted the core part of the present study. This module contained defining statements on agroecology and asked the participants whether those definitions align with their understandings of agroecology. Then, by applying Exploratory Factor Analysis (EFA) to the survey responses of Module 2, the statements were grouped under three distinct factors, or “discourses”, as I refer to them in this study. These three discourses are Transformative Agroecology, Laisse-Faire Approach to Agroecology and Reformist Agroecology, as discussed in Sections 4 and 5 of the present study. These discourses mainly represent how agroecology is discussed, operationalized, promoted, and implemented in practice in Türkiye. In other words, these three factors embody how agroecology is framed: Can it be a political movement for transforming the corporate food regime and its mian apparatus, the industrial agriculture? Or is it rather a reformist endeavor aimed at fine-tuning industrial agriculture by mitigating some of its adverse impacts? Lastly, the third module of the online

survey included questions about the demographics and self-identified stakeholder groups of the respondents in general (i.e. academics, civil society, local governments, central government and scholars)

Following the online surveys, semi-structured in-depth interviews were carried out in order to gain insights more in depth and to validate the responses provided in the online survey. Overall, the survey and interview data complemented each other, enabling this research to identify a variety of discourses, as well as ongoing projects and initiatives related to agroecology in Türkiye. Thus, through identifying the discourses surrounding agroecology in Türkiye, the study enables us to understand which specific discourses and efforts may limit or, or in contrast, enhance the concept's political power and prevalence. The findings therefore can identify potential risks with respect to the operationalization of the concept, as well as its potential for co-optation (Holt-Giménez & Altieri, 2012), as well as contribute to more effective policymaking processes, and enable predictions about future trends in Türkiye's agrifood sectors. Identification of these discourses can enable different stakeholders to navigate the challenges and opportunities within agroecology, and it may empower the advocates of agroecology in their efforts towards achieving a more transformative version of the concept in the Turkish agricultural landscape.

The structure of this thesis is as follows: The following section, Section 2, sets the theoretical foundations by elaborating on, briefly, the food regime theory and food sovereignty, reviewing the literature on agroecology, and contextualizing these concepts within the Turkish agricultural landscape. This section aims to bridge theoretical insights with local practices and challenges. Section 3 outlines the research methodology employed in this study. It describes the field visits, participant observation, the online surveys and in-depth interviews, and the analytical methods used to interpret the collected data. Section 4 presents the results obtained from the data analysis, providing a detailed account of the emerging themes and patterns relevant to agroecology in Türkiye. Section 5 discusses these results by comparing them with the existing literature, thereby identifying consistencies and discrepancies that could indicate areas for further investigation. Finally, Section 6 concludes the thesis by summarizing the key findings and their implications for policymakers and stakeholders in the agrifood sector. It also outlines potential directions for future research, emphasizing the need for continued exploration of agroecology as a transformative force in agriculture.

2. LITERATURE REVIEW

This chapter will first introduce the theoretical frame that will be used in this research; namely food regime analysis and food sovereignty, and then introduce agroecology within these literatures' framework. It will follow the historical roots of each concept to better capture the influence of events and actors on each concept and the relations and intersections between them.

2.1. Food Regime Theory

The food regime theory, initiated by Friedmann (2005) and further developed by McMichael (2006a, 2006b, 2009, 2013, 2014) provides a historical analysis of food systems by examining actors and procedures involved in food production and consumption. This theory integrates Marxist historical analysis, Wallerstein's world system theory, and Aglietta's regulation of capitalist accumulation and aims to explain how and why food and agriculture plays a pivotal role of producing and reproducing global capitalist economy (Bernstein, 2016; Holt Giménez & Shattuck, 2011; McMichael, 2009, 2013). Understanding the crises of food systems requires a holistic analysis of agri-food relations and political economy that shapes those relationships. Therefore, food regime analysis can constitute a starting point for approaching food system crises, possible solutions such as agroecology, points of struggle and transition beyond corporate food regime.

The food regime theory divides the evolution of food systems into three distinct periods starting from the end of 1800s; each period is characterized by different hegemonic powers and economic structures:

The first food regime, "diasporic-colonial food regime of 1870 to 1914" (Friedmann, 2005, p.227) was marked by the establishments for international markets for grain and livestock products and Britain's hegemonic power and exports from colonies to fuel European industrialization (Friedmann, 2005; Holt Giménez & Shattuck, 2011). In this context, the concept "Britain's workshop of the world project" (McMichael, 2013, p.46), envisioned a colonial division of labor that connected European industrial capitalism with agrifood supply-chains in colonies (Friedmann & McMichael, 1989). This regime implemented monocultural agriculture in colonies at the expense of the ecological balance, and it outsourced the staple food production to settler colonies and, in exchange, provided them with manufactured goods, labor, and capital (Friedmann & McMichael, 1989; McMichael, 2009, 2013).

The second food regime, “mercantile-industrial food regime of 1947–1973” (Friedmann, 2005, p.227), coincides with the Cold War period and was a product of the consequential shift of hegemony from Britain to the US and the postwar period. It is characterized by the USA's selective food aid and cheap food supplies as a tool to weaken possibility of socialist revolution in Mexico and Southeast Asia, create alliances, and open markets for reversed food flow from the hegemonic power to the South (Carlile et al., 2021; McMichael, 2009, 2013). By creating international supply chains and replacing local varieties of foodstuff with the US-exported grains and other foodstuff, this regime standardized the diet almost for everyone globally (Friedmann, 2005). This era saw the spread of national agro-industrialization efforts and the deepening of the metabolic rift due to the widespread adoption of Green Revolution techniques and technologies (McMichael, 2009; McMichael, 2013). The Green Revolution was the product of extensive research, development, and technology transfer activities that led to a significant increase in agricultural production, and it was able to replace manual labor with mechanization, substitute local crop varieties with specially selected and high-yielding varieties of cereal grains, and promote the widespread use of hybrid seeds, synthetic fertilizers, and pesticides (Jordan, 2013). However, this shift to industrial agriculture has caused significant environmental and social impacts, including soil compaction from the heavy use of machinery, contamination of groundwater with phosphates, nitrates, and pesticide residues, loss of biodiversity, and higher carbon emissions compared to non-industrial methods (Woodhouse, 2010). This machinery- and input-dependent approach favored large-scale farming due to economies of scale, leading to the concentration of land ownership and an increase in the number of landless peasants, ultimately degrading the social fabric (Woodhouse, 2010). These negative impacts became increasingly visible, not only for the farmers and environmental movements, but also for the national governments and international organizations. The next food regime, the corporate food regime, therefore, reflects the dynamics of both opposition and resistance, as well as efforts towards the continuation of the industrial agricultural production by attenuating some of these negative social and environmental impacts, as briefly described below.

The third food regime, namely, the corporate food regime, was described by food regime scholars as "the era governed increasingly by financialization and neoliberal advocacy of market rule" from the 1980s (McMichael, 2013, p.41). Accordingly, the national governments reduced their control and regulations in favor of corporate interest, replacing state hegemony with corporate hegemony, effectively "turning states into servants of the market" (McMichael, 2013, p.45). Further, states' role as regulatory of money was passed to international organizations such as IMF, "restructuring states to reproduce money by using up labor and land across the world with decreasing regard for their

sustainability" (McMichael, 2006, p. 408). Arguably, in contrast to the second food regime and its technological *revolution*, the third regime was the era of technological *redistribution* accompanied by the transfer of wealth and power from poor to rich (Moore, 2010, p.232 as cited in McMichael, 2013). This transfer was realized with a long chain of events, including the creation of "newly industrializing countries" and "new agricultural countries" (Friedmann, 1991 as cited in McMichael 2013, p.49). While the former represents the Global North countries that transfer the export of basic foodstuff and industrial, agricultural raw material to the Global South countries, the latter refered to those countries subject to financial reform packages enforcing the liberalization and strengthening of corporate-driven agro-exports in return for the financing provided by IMF (McMichael, 2013).

The corporate food regime was conceptualized by Friedmann (2005) as the *corporate-environmental food regime* due to its differentiated designs of market and production. The opposing voices raised by civil societies, farmers and consumers on animal welfare, food safety, environmental damages were selectively heard by the agribusinesses, which led the creation of bifurcated markets, production areas and techniques for the elites and the poor; “deepen the inequalities between the rich and poor eaters” (Friedmann, 2005, p. 228). However, this differentiation in diet and market also clearly illustrates how food become a tool for creation of new markets for further capital accumulation. By bifurcating consumer groups such as “high-end consumers” and “low-end consumers” and giving strategic goals to edible commodities as feeding and reproducing the labor for production for lower costs and selectively satisfying health- and environmental-demands of elites while creating higher profit generating markets (Friedmann, 2005, p.258). Holt Gimenez and Shattuck (2011) therefore argue that what Friedmann called the corporate-environmental food regime represents the binary trend within the corporate food regime. Accordingly, the first trend is the neoliberal one, relying on corporate-driven, market-oriented agrifood relations governed by powerful branches of USDA, EU, WTO, and IMF. The second trend, the reformist corporate food regime, is governed by the same institutions, but by different -weaker- offices and aims to mitigate the *externalities* of this food regime, with no intention to investigate the root cause of those *externalities* (Holt Gimenez & Shattuck, 2011, p.115). As Holt-Giménez & Altieri explain, “the rampant, unregulated market would eventually destroy the social and natural resource base of capitalist production” (2012, p.96). Thus, the efforts of neoliberal and colonial states and big agri-corporations towards agroecology should not be understood as efforts for reforming the agricultural sector for the improvement of the conditions of nature, farmers and peasants. Instead, these efforts aim to ensure their own profits and sustain their existence.

The third food regime is a combination of complex and multi-faceted historical and institutional developments that shaped not only food and agriculture but also the global political economy and international relationships. The developments since the 1980s – domination of agribusinesses that adopt industrial agricultural methods that "maximizes single-crop yields and generate surpluses, which gain subsidy for global export, in turn undermining less-intensive methods and productive capacity elsewhere" (Levidow, 2015, p.77) and deteriorated the agricultural sector, ecological integrity and peasants' everyday lives, especially in the Global South. These deteriorating conditions in farmers' lives were also the results of the WTO-led world price arrangements and minimum import rules that simultaneously protected the economic benefit of agribusinesses of the Global North and imposed below-the-cost prices for basic foodstuff produced by small-scale and family farmers of the Global South (McMichael, 2013). The same devastation in farmers lives and livelihoods was also exacerbated by the mechanism of debt-payment of indebted Global South countries via cheap food exports to the Global North and abolishment of the protective role of the national governments on the domestic markets due to international trade agreements. In many countries, farmers and peasants demanded their governments to "take a stand at the WTO, (…) redistribute land, protect them from intellectual property claims on seeds, (…) and resist the pressure to redirect agriculture toward export crops to the North instead of food production" (Friedmann, 2005, p. 248). These developments started the internationalization of food and farmer movements and creation of Via Campesina in 1993. Over the past 30 years La Via Campesina grew further to encompass 200 million people all over the world and played the leading role for defending and promoting food sovereignty (Via Campesina, n.d.).

Gimenez & Shattuck (2011) argue that similar to the dual trend within the corporate food regime mentioned above, there is also a duality in the opposition to the corporate food regime and in global food movements, as *progressive* and *radical*. While the progressive approaches in food movements mostly offer ecological and organic agriculture and food networks as solutions, emphasize right to food and food justice in their struggle to ensure ethnic, socioeconomic and gender-based justice, they generally do so within the existing structures of the capitalist food system. However, according to Holt Gimenez and Shattuck, the radical trend, mostly represented by the food sovereignty movement advanced and promoted by La Via Campesina, focuses on market structures, property regimes, class-, ethnicity-, gender-based inequalities, and calls for dismantling that system and demands reforms and redistribution; and it is "anti-imperialist, anti-corporatist and/or anticapitalist." (2011, p.115).

2.2. Food Sovereignty

The concept of "food sovereignty" can be better understood in relation to the term "food security". Food security, a concept that emerged amid the food and energy crises of the 1970s, initially focused on the uninterrupted supply of food and non-fluctuating market prices (Clay, 2003; Thompson et al., 2020). Initially, it was defined in the UN Report of the World Food Conference in 1974 as "the availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices." (as cited in Clay, 2003 This definition was later critiqued from several perspectives, highlighting that having an adequate level of food supply at the country level does not guarantee access to food at the individual level. Further, the concept was criticized on the grounds that it overlooks demand-side dynamics and structural poverty (Clay, 2003).

Over the following 30 years, however, the food security concept evolved and was broadened due to the interactions and exchanges with social movements. Particularly, La Via Campesina proposed "food sovereignty" as a new concept emphasizing the needs and autonomy of farmers as an alternative to food security, which was missing in the food security definition (Patel, 2009). The latest definition of food security, after considering inputs from scholars and social movements, became:

> "Food security, at the individual, household, national, regional, and global levels, [is achieved] when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996, as cited in Clay, 2003).

The concept of food security is often used by reformist actors within the corporate food regime, aiming to sustain the status quo with reduced levels of social and ecological damage (Holt Giménez & Shattuck, 2011). However, according to its critiques, food security concept does not consider the origins, producers or production methods of food and fails to address the issue of social control over food, resulting in a descriptive and diplomatic discourse (Patel, 2009; P. Rosset, 2003; Thompson et al., 2020). Rather, it focuses on the amount of food that is available, alternative techniques and practices in agriculture that would sustain higher yields to ensure food security. Existing evidence, however, suggests that increasing agricultural productivity does not automatically ensure food security, and there are many instances that attempts to increase agricultural productivity instead exacerbated hunger due to the problems in the distribution of food (Sampson, 2018).

In response to the above mentioned framing of food security and the rising discomfort due to structural adjustment policies that harm small-scale farmers and depeasantization brought by the neoliberal transformation that paves the way for corporate dominance in the agrifood sector, La Via Campesina made a declaration about the concept of "food sovereignty" in 1996, a normative concept that challenges the dynamics of the corporate food system, as a precondition for genuine food security (Patel, 2009), with the following statement in the Rome World Food Summit:

> "Any discussion that ignores our contribution will fail to eradicate poverty and hunger. Food is a basic human right. This right can only be realized in a system where food sovereignty is guaranteed. Food sovereignty is the right of each nation to maintain and develop its own capacity to produce its basic foods respecting cultural and productive diversity. We have the right to produce our own food in our own territory. Food sovereignty is a pre-condition to genuine food security." (Via Campesina, 1996, quoted in Edelman, 2014).

In 2002, International Planning Committee of Food Sovereignty made a modification to this statement by changing the definition of food sovereignty from "the right of each nation" to the right of "peoples, communities and countries". The Declaration of the Nyéléni Forum for Food Sovereignty five years later further simplified in into the right so of "peoples" (Edelman, 2014, p.967). This small change in the definition made the greatest difference by giving power to peoples and communities. It took the power imbalances that can exist between nations—such as large agro-export nations of the Global North versus Third World agro-export nations, which have different characteristics and levels of autonomy—and even within small communities - between producers of different scales- into consideration (P. Rosset, 2003). The change underlined self-determination and self-governance, and autonomy, of peoples rather than nations and states.

With continuous interaction and exchange between food security and food sovereignty scholars and activists, however, it became evident that the terms of food security and food sovereignty are indeed complementing each other, as the former focuses on the access to food and the latter on farmers' rights and autonomy. As such they are relational and complementary even though they are often conceptualized and operationalized as opposing alternatives (Clapp, 2014; Edelman, 2014).

Just like food security, food sovereignty has been over-defined in various ways (Patel, 2009). The question of who holds the "sovereignty" in food sovereignty has been discussed intensively and finally clarified; from the perspective of social movements, food sovereignty fundamentally underlines the importance of relying on small-scale farmers, local and intergenerational knowledge

and practices, and respecting the autonomy of rural and urban communities (Via Campesina, n.d.). It aims to close the gap between rural and urban areas through direct relationships and foster solidarity among people to ensure the provision of adequate, healthy, and culturally appropriate food for everyone (Via Campesina, n.d.). In 2007, the Nyéléni Declaration provided a definition for food sovereignty that has been accepted by many actors since then:

> "Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts the aspirations and needs of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. It defends the interests and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming, pastoral and fisheries systems determined by local producers and users." (Nyéléni, 2007)

As such, food sovereignty is a movement and a political project that aims and has the potential to create an alternative agrarianism against the corporate food regime, by regarding peasants as the protagonists of the food system and food system transformation (Doğançayır & Kocagöz, 2017; McMichael, 2013, 2014). However, the concept has been criticized for overlooking the diverse agrarian classes, treating farmers and peasants as a homogeneous group, and for overly romanticizing agroecology and farmer-driven knowledge, potentially neglecting the important role of modern science and technology (Bernstein, 2013; Jansen, 2014). Furthermore, while food sovereignty has initially emerged as an alternative to the concept of food security—which does not address the issue of power relations—it has often been adopted within sub-hegemonic contexts, such as national sovereignty and national-popular reformist regimes that avoid challenging capitalist social-property relations (Tilzey, 2019). Tilzey describes this process as "the co-optation of the progressive tendencies within the food sovereignty movement" (2019, p.5). Accordingly, this co-optation allows for "addressing selected symptoms of capitalist contradiction, notably poverty and inequality, through redistributive policies, while failing to address their structural causes, rooted in highly unequal access to the means of production" (Tilzey, 2019, p.5). Furthermore, De La Torre (2013, as cited in Tilzey, 2019) noted that the co-optation of social movements, including food sovereignty and indigenous movements in Latin America, has transformed citizens and civil society into passive beneficiaries of the leader's seemingly benevolent and technocratically engineered policies, reflecting a clear shift towards authoritarianism. As a result, the underlying transformative potential of food sovereignty to address the root causes, such as systemic inequalities that result in poverty, can be diluted, becoming

a cure for the symptoms (poverty) without leading to fundamental transformation, depending on the form of support it receives, and which specific actors are adopting the term.

In contrast, according to Via Campesina, for instance, a food sovereignty movement, that is not co-opted or redefined by powerful actors, should struggle against dispossessions, land grabbing, eroding local and traditional knowledge and creating a superior type of knowledge that only promotes industrial agriculture, gender, ethnicity- and class-based exploitation, lessened employment opportunities and rising precarity, chemical-intensive and large-scale monoculture, and use of genetically modified crops (Rosset, 2003). As such, it is a form of resistance against a system that puts profit over life and a "banner of joint struggle for justice, and as a larger framework for agroecology" (IPC, 2015; Via Campesina, 2015).

The conceptual and practical intersection between food sovereignty and agroecology has been pointed out extensively by several scholars (López-García et al., 2021; Ribeiro, 2023; Rivera-Ferre, 2018; P. Rosset, 2003; P. M. Rosset & Martínez-Torres, 2012; Snipstal, 2015; Via Campesina; 2015). Accordingly, food sovereignty emphasizes agroecology, giving priority to traditional agricultural methods and heirloom and local seeds, biodiversity, just prices, and local food consumption (Adaman et al., 2022; Kocagöz, 2016; Kocagöz, 2019). However, as food sovereignty, food security, or any other concept that has drawn attention from actors with competing and conflicting interest, agroecology has been defined in various ways as well. In the following subsection, therefore, the history, evolution and disputes over agroecology will be discussed.

2.3. Agroecology

The term "agroecology" is derived from the Latin word "agro," meaning "field," and the Greek words "eco" and "logy," which mean "house, environment," and "science," respectively (Özkaya & Özden, 2021, p. 19). Today, agroecology refers to three distinct but interconnected entities: i) a scientific discipline that studies the functioning, characteristics of, and ecological, social, economic, and political mechanisms that shape agroecosystems; ii) a practice that opposes to the use of agrochemicals, monoculture, genetic manipulation and input substitution; and iii) a social movement that aims for ecological sustainability and social justice (Via Campesina, 2013; P. M. Rosset & Altieri, 2017; Wezel et al., 2009; Özkaya et al., 2021). However, the emergence and development of these entities are products of historical, political and economic developments of 20th century as briefly outlined below.

2.3.1. The History of Agroecology

An important issue in the agricultural history of the 20th century was the experience of agronomists and scientists sent by European colonial powers to increase efficiency in commercial agriculture in their colonies. These experts encountered the highly complex and efficient agricultural principles and practices that had been applied there for centuries, and they developed these practices under concepts such as “organic” agriculture and “biodynamic” agriculture and introduced these concepts to Europe and North America (Rosset & Altieri, 2017). Although the concepts like organic and biodynamic agriculture are not the exactly the same as agroecology, they are often considered closely related, or even under the umbrella term of agroecology because they represent farming techniques based on indigenous and traditional knowledge accumulated and transmitted over generations, in harmony with nature.

The term agroecology, first used by a Russian agronomist Bensin to refer to the implementation of principles and techniques of ecology to commercial crop plants, followed by Tischler and his several books used the term agroecology explicitly in its title and focusing on pest management and soil biology (Wezel et al., 2009; Wezel & Soldat, 2009). Thus, the "first-generation hybrid scientific discipline of agroecology" emerged to connect two related but separated disciplines, namely agronomy and ecology (Rivera-Núñez et al., 2020; p.2) which was later expanded to include zoology, plant physiology, and botany (Ewert et al., 2023; Gliessman, 2015; Wezel et al., 2009). Wezel and Soldat describe the period from the first use of the term in 1928 until the 1960s as '*the old age of agroecology' phase,* i.e. as the starting phase, which was characterized primarily by scientific publishing in the disciplines listed above (2009, p.504), focusing mainly on pest management and adoption of ecological techniques in plot scale (Özkaya & Özden, 2021). Research on agroecology, even it was rarely labeled as such explicitly, continued to grow slowly during this period. In this initial phase, agroecology was seen and studied as a scientific discipline, which was in line with the food regime of that time that focused on innovations, new techniques, and technologies that enhanced the profitability of agricultural sector by increasing efficiency.

It was not until the 1960s and the 1970s that the research on agroecology gained a momentum (Gliessman, 2007). With this momentum, agroecology became “the distinct methodology and conceptual framework for the study of agroecosystems” (Gliessman, 2007, p.19). Agroecosystems are “domesticated ecosystems that operate between natural and fabricated ecosystems” (Wezel &

Soldat, 2009; p.10). Agroecosystems were considered as products of agriculture. Accordingly, the farmers and cultures of the community which designed the agriculture and the location of it were producing the agroecosystem, and agroecosystems varies with communities that shapes it (Espinosa-García et al., 2024). In other words, the scope of agroecology was broadened to encompass not only the biotic and abiotic components specific to a locality but also humans, cultures and social norms that shape agricultural practices. Özkaya and Özden (2021) discuss this development, noting that agroecology has grown from a focus on the plot scale to the farm scale, thereby incorporating various other elements within the farm, including animals, humans and the natural environment. The 1970s were the period where agroecology as a "practice" gained momentum (Silici, 2014). Those practices were a response and an alternative to the increasingly industrializing agriculture and re-spreading of indigenous and traditional methods.

The period from the 1970s to the 2000s was termed the *expansion phase of agroecology* by Wezel and Soldat (2009). In this period, the number of scientific studies conducted on agroecology rose and their context widened to incorporate social sciences disciplines. The research on agroecology grew to include inputs from new fields, such as sociology, economics, anthropology and environmental sciences (Ewert et al., 2023; Gliessman, 2015; Wezel et al., 2009). Consequently, agroecology gained a new characteristic as a trans-disciplinary science and a methodology for participatory research and eventually went beyond the formerly defined borders as the study of agroecosystems and reached a new definition of ecology of the whole food system (Francis et al., 2003; Rosset & Altieri, 2017). In other words, agroecology started to focus on the aim to make "agroecosystems to mimic the functioning of natural systems" (Pimbert, 2015, p.287). This expansion and evolution of agroecology was the product of the ongoing transformations in the world. Globally, there was a new food regime emerging (i.e. corporate food regime), an oil crisis in the 1970s that led to massive social unrest; and neoliberalism, corporate power and globalization were rising. Concurrently, the detrimental effects of intensification and specialization in agriculture brought by the Green Revolution, along with the state's diminishing and transforming role as the protector of the agricultural sector and regulator of the market, triggered numerous conflicts and protest movements, particularly among Mexican farmers (Francis et al., 2003; Gliessman, 2007, 2015; Wezel et al., 2009). These events were later cited as the moments when the seeds of the food sovereignty movement were sown (Thompson et al., 2020). The environmental movements after the 1960s were thus responding to the outcomes of industrial agriculture as the product of Green Revolution (Wezel et al., 2009). The combination of political, economic, and ecological downturns was one of the initial steps that took agroecology out of academic circles and turned it into a political movement. In the 1990s, the use of agroecology in environmental and peasant social movements accelerated with Via Campesina's

adoption of agroecology as a pillar of food sovereignty. A brief visual summary of the historical developments in terms of agroecology as a scientific discipline, as a set of practices and as a movement is illustrated in the figure below (Silici, 2014).

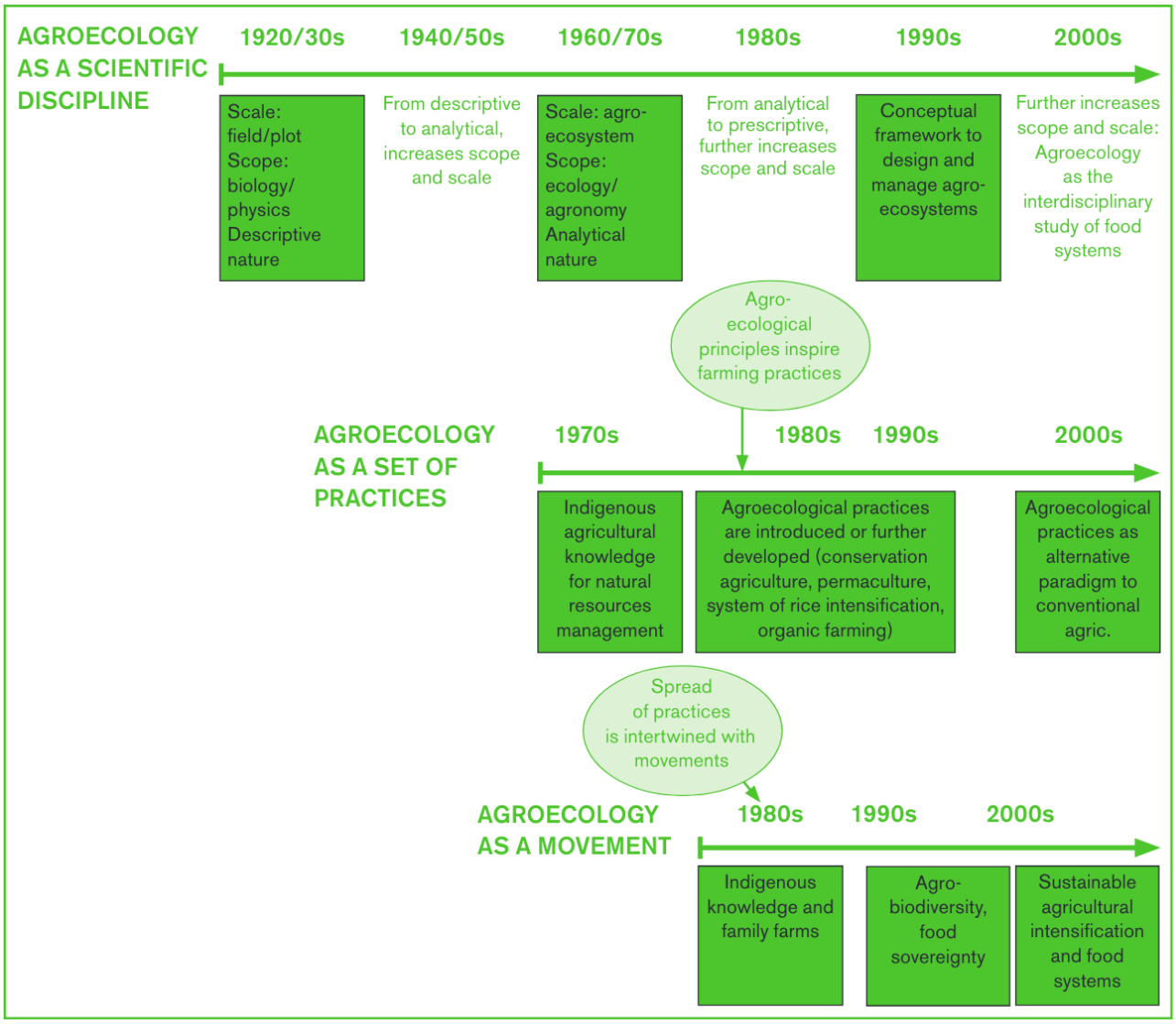


Figure 2. 1: Agroecology: An Evolving Concept. Source: “Agroecology: What it is and what it has to offer” by L. Silici, 2014.

2.3.2. Different Agroecologies: Diverse Understandings and Discourses of Agroecology

Scholars have argued that the shift towards more sustainable forms of agriculture may take three forms: resilience-building without altering the existing conditions fundamental to maintain the status quo; a transition through incremental changes; or transformation through radical change (Pelling, 2011, as cited in Turhan, 2016). Accordingly, unlike transformation, adjustment and reformism do not challenge the underlying goals of the socio-ecological system; instead, they aim to sustain it as it is (Turhan, 2016). Similarly, advocates of food sovereignty and agroecology often conceptualize agroecology as a transformation that is understood as an alternative agrarianism that opposes the corporate food regime, advocating for land rights and more equitable economic relations (McMichael, 2013, as cited in Jansen, 2015). Arguably, an agroecological transformation would shift productive activities towards less exhaustive ones with respect to the nature—less depleting, more resource-efficient, utilizing existing resources within the natural environment, and not relying on external or synthetic inputs. It would also shift economic practices from a market-oriented vision to structures based on social and solidarity economies, while redefining social institutions and relationships. However, not all actors of the agrifood system define agroecology in this type of transformation framework. This is mainly associated with the flexible and all-encompassing nature of agroecology, as it is an umbrella term often including organic agriculture, permaculture, and regenerative agriculture, among others (Özkaya & Özden, 2021, p. 21). Accordingly, rather than providing strict prescriptions or one-size-fits-all solutions, it offers "contextually sensitive principles of general relevance" that adapt to local conditions and integrate traditional knowledge (Bell & Bellon, 2018, p.1). This flexibility allows agroecology to be a radical social movement and practice for some actors, while it is a set of techniques to increase resilience of agricultural systems and contributing rural development in the neoliberal and developmentalist paradigm. While it is true that the latter form of agroecology would still greatly contribute to local development and increase environmental sustainability of farming practices to a certain degree, it would be still insufficient to address macro-scale structures in the food regime and neoliberal capitalism that are the root causes of the unsustainable forms of agricultural practices and relations (Anderson et al., 2019).

Agroecology has been criticized on the grounds that its capacity to feed the word would not be sufficient, in reference to its allegedly low productivity and obstacles towards scaling up (Holt Gimenez & Altieri, 2012). For instance, Jansen (2015) questioned agroecology's productivity, asserting that the only reliable data on its productivity comes from research on organic farming, which often cannot compete with the productivity of industrial agriculture. Yıldız (2021), on the other hand,

argued that focusing solely on product per unit area is reductive, as it ignores ecosystem sustainability and the harmony of agrifood products with nature. Accordingly, organic agriculture produces only about 8% less than industrial agriculture, despite most research and development funds being directed towards industrial methods. Scholars have therefore suggested that organic agriculture could compete with industrial agriculture if it received adequate funding (Ponisio et al., 2014; Yıldız, 2021). Jansen (2015) further critiqued the autonomy principle of agroecology, pointing out a contradiction between this principle and the openness of agroecological initiatives to collaborate with local and central governments (Jansen, 2015). However, it has been suggested that the autonomy principle refers to the independence of farmers from financial institutions and industry, as well as the ability to build an alternative set of relationships (Yıldız, 2021). Lastly, Jansen (2015) questioned the reliance of agroecology on traditional and local knowledge, claiming that in some cases, traditional knowledge may conflict with agroecological principles. However, Jansen was criticized, in turn, for missing one important point, namely, the idea that agroecology does not rely solely on traditional, indigenous, or peasant knowledge. Instead, agroecology is claimed to integrate contributions from various scientific fields and other sources of knowledge, combining them to create locally specific, bottom-up solutions and methods (Yıldız, 2021).

Although agroecology was originally intended as a critique of the dominant agri-food regime, its strong emphasis on ecological principles, combined with the flexibility of rules specific to each locality, also paved the way for its co-optation by more mainstream discourses, which neglected and even ignored some of its broader socioeconomic dimensions (Levidow et al., 2014). In the context of social movements theory, “co-optation” refers to the process by which the potential of a social movement to effect change is altered by absorbing the movement or its concepts (Holdo, 2019). This alteration is typically driven by powerful actors who seek to maintain their power rather than promote genuine change (Holdo, 2019). Therefore, in the context of agroecology, co-optation would involve institutions adopting the concept into their policies and projects in ways that benefit agribusinesses, promoting monocultures and large-scale farming, and relying on external inputs that create dependencies such that the term agroecology would neither challenge the self-insufficiency of contemporary farming practices, nor address the underlying social and ecological exploitation.

From the 20th to the 21st century, the historical evolution of the scale, dimensions, and definitions of agroecology followed. The tripartite definition of agroecology - as a science, a practice and a social movement- is sometimes referred to as the "agroecological holy trinity," for highlighting its significance in agroecological research (Espinosa-García et al., 2024, p.5). Despite this observation and the proposed tripartite definition, the literature on agroecology is still far from reaching a

consensus on its definition. The multiplicity of definitions, understandings and discourses arises especially from its strong policy relevance, as agroecology was gradually becoming a globally important buzzword while it was entering national and global policy and public debates (Levidow et al., 2014; Rivera-Ferre, 2018). This development stripped agroecology from its tripartite definition, linking it merely with conventional and industrial agricultural practices and presenting within a productivist discourse and policy agenda (Levidow et al., 2014). Discourse control was heavily imposed on the term in the policy arena so that this would preserve the status quo regarding industrial practices and power balances, and only prioritizing the environmental performance and indicators of industrial agriculture (Kelinsky-Jones et al., 2023). For this reason, there is now a growing scientific and public interest in how agroecology is framed, understood, and perceived, and in the various discourses and narratives surrounding it (Barrios et al., 2020; Bellwood-Howard & Ripoll, 2020; Bittencourt, 2019; Bless et al., 2023; Gordon et al., 2023; Kelinsky-Jones et al., 2023; Rivera-Ferre, 2018).

However, there are also scientists suggesting that we should stop seeking a consensus on the definition of agroecology, as its highly complex and contested nature makes this unlikely; instead, they note that we should investigate the diverse set of perceptions, understandings, narratives, and discourses pertaining to agroecology (Bittencourt, 2019). On the other hand, the lack of consensus should not imply that there is no clear definition of agroecology or that we need simple, narrow definitions that reduce agroecology to a single concept, nor breaking the interlinkages of its complex structures, and mainly considering it as a scientific field led by Western values and natural sciences (Méndez et al., 2013). Instead, scholars see it as essential to celebrate the different sources of knowledge that shape agricultural visions and practices. Understanding the divergences in framing and defining agroecology and linking these variations to the actors and political visions involved is indeed crucial.

In this context, Espinosa-García et al. (2024) suggest that the diverse set of definitions used for referring to agroecology creates “a conceptual Babel” in which all stakeholders speak a different language, hindering communication and synergies between practitioners and agroecologists (Espinosa-Garcia et al.,, 2024, p.6). Similarly, Penvern et al. (2023,) and Bell & Bellon (2021) revealed several dichotomous categories for agroecology in the literature. Accordingly, “weak vs. strong” (Duru, Therond, & Fares, 2015; López-I-Gelats et al., 2016), “soft vs. hard” (Dalgaard, Hutchings, & Porter, 2003), “technical vs. political” (de Molina & Gonzalez, 2013), “ “co-opted vs. peasants' and social movements'” (Holt-Giménez & Altieri, 2012; Rivera-Ferre, 2018), “conforming vs. transformative” (Levidow et al., 2014), “radical vs. reformist” (Holt-Giménez &

Altieri, 2012), and “scientific vs. political narrative and social action” (Léon, 2009) categories become visible for conceptualizing agroecology on a theoretical level. Building on these findings, new categories emerged recently on agroecology such as “technical, technocentric, scientific and institutional vs. ‘people’s agroecology’” (Giraldo & Rosset, 2018) and “true (emancipatory) vs. false (neoliberal, reformist) agroecologies” (Giraldo & Rosset, 2023).

As some of these studies play a guiding role for this thesis; below I present a more in-depth look into these studies:

Levidow et al., (2014) argue that agroecology can either aim to "stretch-and-transform" the dominant agro-food regime or it can "fit-and-conform" (pp. 1134–1135). For agroecology to be transformative, it must encompass the three entities of science, practice, and knowledge; be connected to food sovereignty; and merge scientific, practitioner, indigenous, and traditional knowledge through participatory knowledge creation processes (Levidow et al., 2014). Failing to meet these requirements would reduce agroecology to a conforming buzzword, as seen in the adoption of so-called agroecological practices in Europe by the actors of conventional agriculture; for instance, McDonald's use of agroecology alongside GM technologies and monoculture, selectively adopting its practices with productivist aims (Levidow, 2015).

In a similar vein, Rivera-Ferre (2018) posits that the tripartite definition of agroecology as a science, movement and practice is often perceived as fragmented rather than intertwined, paving the way for the co-optation of agroecology by mainstream actors in the agricultural sector. Rivera-Ferre identifies five emergent narratives of agroecology in the global policy arena “agricultural development; performance; natural resource, climate change and food security; ecosystem’s ecological management; people’s and women solidarity” used in various combinations by diverse actors to redesign agroecology according to their interests (Rivera-Ferre, 2018, p.12). She concludes that social movements construct a holistic view of agroecology based on these narratives, while nation-states often have a limited vision, reducing it to a sustainable intensification agenda where FAO falls in the middle, mildly incorporating agroecological narratives and positioning itself in the reformist rather than the transformative camp (Rivera-Ferre, 2018).

Another recent study illustrates how different understanding and framings can support specific paradigms of agricultural development in the agricultural policy agenda in Africa (Bellwood-Howard & Ripoll, 2020). The researchers identified five distinct understandings of agroecology: ‘no knowledge of agroecology’, ‘descriptive science’, ‘science for sustainability’, ‘environmentally

sustainable farming practices' and 'political agroecology' (Bellwood-Howard & Ripoll, 2020; pp. 2-3). Accordingly, each of these understandings works in harmony with different agricultural and economic development paradigms in Africa. For example, descriptive science understanding of agroecology, which discards any inter- or trans-disciplinary and social movement features of it, supports the African Green Revolution paradigm supported by mega corporations and philanthropy foundations. To the contrary, political agroecology and science for sustainability understanding nurtures an understanding of agroecology that envisages family farms, local markets, attaining high yields with ecological methods with the goal of empowering farmers (Bellwood-Howard & Ripoll,, 2020).

Giraldo & Rosset's (2018) study, on the other hand, finds a distinctly binary division within global agroecology debates, identifying two main camps: the institutional camp, which includes NGOs, governments, and the private sector, and the social movements camp. They highlight how the institutional camp employs agroecology to consolidate the capitalist development paradigm, promote hierarchical and expert-driven knowledge creation and dissemination processes, and replace agrotoxins with bio-substitutes that still perpetuate dependency on external inputs (Giraldo &Rosset, 2018). However, in their later research, Giraldo & Rosset further developed this categorization, recognizing efforts within the institutional camp that seem well-intentioned but are counterproductive and fall into the category of 'Reformist Agroecology' (2023, p.2). Accordingly, reformist agroecology is the results of progressive governments' and NGOs' attempts to promote agroecology but these efforts often fail to fundamentally transform the dominant food system and may unintentionally limit farmers' autonomy and the sustainability of farmers' engagement with agroecological practices by fostering new dependencies. In addition, they frame the agroecology definitions and co-optation attempts coming from the same actors as the 'neoliberal agroecology' embodied, for instance, by climate-smart agriculture, sustainable intensification, net-zero emission agriculture, and corporate-led regenerative agriculture, which typically rely on monocultures, large-scale operations, and contract farming, placing neoliberal and reformist agroecology under the roof of 'false agroecologies' (Giraldo & Rosset, 2023, p.2).

With a similar focus, a joint report by the Friends of the Earth International, Transnational Institute and Crocevia call this type of corporate capture of agroecology, or what is labelled as neoliberal agroecology above, as "junk-agroecology" (Alonso-Fradejas et al.,2020). They highlight that large agrifood corporations selectively adopt certain useful practices, discourses, and objectives of agroecology without truly committing to its core principles of social justice and environmental harmony (Alonso-Fradejas et al., 2020). According to this report, their varied efforts to integrate some parts of agroecology or to infuse agroecological nuances into their standard practices under initiatives

such as the Sustainable Agriculture Initiative, New Vision for Agriculture, and The New Food and Land Use Economy Coalition, still reflect a techno-productivist obsession, a focus on markets, a fixation on global value chains, and a natural resource governance model driven by private governance (Alonso-Fradejas et al., 2020). Overall, the report concludes that what agricorporations promote as agroecology is merely an attempt to mitigate industrial agriculture's socioecological impacts.

As this subsection has discussed in detail, agroecology is not a monolith. It is a spectrum of practices and philosophies that range from the deeply transformative to system-maintaining. Each of these agroecologies has their own principles on social justice, ecological health and economic priorities. Yet, the main findings in this literature imply that there is a general binary nature regarding how agroecology is understood and operationalized: One discourse is reinforcing existing capitalist frameworks and industrial mode of agriculture under the guise of sustainability, and the other originating from grassroots movements promote community empowerment, conservation of culture, tradition, biodiversity and ecosystems, deepening the social solidarity. Therefore, currently, a challenging but necessary step for agroecology to take is to navigate these waters without diluting its core principles relying on socio-ecological justice. However, without a deeper understanding of the local context, the history and the current presence of conflicts between different actors in the agricultural sector, an analysis of different discourses on agroecology for the national context cannot be complete. That is why I briefly provide an overview for the agriculture in Türkiye in the next subsection before going more in depth with the methodology and the findings of the study in Section 3 and 4.

2.4. Emergence of Agroecology in Türkiye

Agriculture has historically been a cornerstone of Turkish economy. As one of the largest agricultural producers in Europe, the sector sustains approximately 20% of the population, with this figure increasing to 33% when informal agricultural activities are accounted for (Adaman, 2022). However, a series of developments—namely Green Revolution, and the shift towards neoliberal policies—have significantly transformed the agricultural landscape. These developments have diminished the state's role in agriculture, leading to increased number of seasonal workers in agricultural sector, semi-proletarianization of farmers, and greater migration to urban areas (Adaman, 2022; Adaman et al., 2022). Over the past four decades, alignment with global neoliberal trends has profoundly impacted the agricultural workforce and the broader economic structure.

In recent years, agricultural sector has seen increased corporatization and growing threats emerged for the livelihoods of small-scale farmers (Farmers Union, 2020). A pivotal moment was the introduction of the Agricultural Reform Implementation Project (ARIP), designed by the World Bank and Turkish Treasury in 2001. This project restructured the agricultural sector through policies such as elimination of floor price supports, reduction in input subsidies, promotion of foreign trade, privatization of state-owned enterprises, increased interest rates for agricultural loans, privatization of irrigation systems, and redirection of subsidies to encourage the cultivation of new crops (Doğançayır & Kocagöz, 2017; Farmer's Union, 2020). The birth of food sovereignty movement, as a farmers' movement, in Türkiye was a direct response to the ARIP, and later with the foundation of Çiftçi-Sen (Farmers' Union), the food sovereignty movement consolidated in Türkiye (Doğançayır & Kocagöz, 2017).

Following the neoliberal agenda set by the ARIP, the 2006 Seed Law further transformed the Turkish food system. This law restricted the sale of local and heritage seeds, imposed new standards for seed certification, reproduction, and exports, and privatized the seed registration system, facilitated the use of genetically modified organisms in agriculture and promoted hybrid seeds (Doğançayır & Kocagöz, 2017; Nizam & Yenal, 2020). This legislation was widely regarded as a crucial step toward establishing a corporate food regime in Türkiye and corporate takeover in the Turkish agricultural sector (Doğançayır & Kocagöz, 2017). However, with the strong opposition and formation of an anti-GMO platform, the production of GMO products in Türkiye was prohibited (Doğançayır & Kocagöz, 2017; Nizam & Yenal, 2020). In that way, the Seed Law has been argued to have ignited the process of counter-hegemonic food movement in Türkiye by linking farmers and urban consumers and activists in alternative food networks (Nizam & Yenal, 2020).

Despite the undeniable presence of grassroot efforts, especially among farmers, for food sovereignty, the dissatisfaction with agricultural policies did not result in strong rural protests against the Justice and Development Party (JDP) government (İnce & Kadirbeyoğlu, 2020). However, in urban centers, Alternative Food Networks (AFN) have been instrumental in shaping and advancing the food sovereignty movement, offering a viable alternative to the food produced with industrial methods and chemical inputs; sold in supermarkets. Pioneering AFNs such as BÜKOOP (Boğaziçi University Consumers' Cooperative), Kadıköy Cooperative, and DÜRTÜK (Resisting Producer and Consumer Collective), alongside environmental and solidarity groups like KEÇİ, Buğday Association, Four Seasons Ecological Life Association, and Yeryüzü Association, have played key roles. They facilitated connections between small-scale farmers practicing agroecology or ecological

agriculture and urban consumers, thereby promoting food sovereignty, agroecology, and solidarity-based relationships (Doğançayır & Kocagöz, 2017; İnce & Kadirbeylioğlu, 2020). Over the past decade, these groups have also launched numerous initiatives aimed at grassroots transformation of food systems. These initiatives include establishing ecological producers' markets, promoting agroecology among migrant and minority farmers, and supporting post-earthquake recovery efforts to empower and rehabilitate social and economic life in affected regions.

In Türkiye, the term agroecology was started to be used by proponents of the food sovereignty movement first, as a response to the neoliberal attacks on agricultural production. This response was mainly initiated by ÇİFTÇİ-SEN and later spread to consumers via alternative food initiatives and networks. Recently, some of these initiatives are also supported by local governments within urban food policies (Doğançayır & Kocagöz, 2017, pp. 14-16). One clear example of local municipalities' support for ecological production is the Nilüfer district municipality of Bursa. Nilüfer Municipality supports agricultural population and activities aiming ecological production and enhancing farmers' organization and autonomy through different channels in scope of the international food system transformation projects they are part of (Büyükyılmaz, 2020; Karakaya Ayalp et al., 2022).

Additionally, several local governments in Türkiye have actively engaged in creating urban food strategy documents that emphasize food sovereignty and agroecology. The first of these pioneering documents was developed by the Istanbul Metropolitan Municipality and the Istanbul Planning agency in 2021[1]. The initiative was soon followed by the Karşıyaka Municipality in İzmir, which produced the Karşıyaka Urban Food Strategy Document[2]. Unlike Istanbul's strategy, which acknowledges food sovereignty and agroecology without committing to specific targets, Karşıyaka's document explicitly positions agroecology both as a strategic goal and a guiding principle. This distinction may stem from the rapid development of agroecology in Türkiye over the two years separating the publications of Istanbul's and Karşıyaka's strategies. Furthermore, two new food strategy documents are in the making by the Izmir Metropolitan Municipality[3] and Nilüfer District Municipality[4] in Bursa, indicating a growing trend towards incorporating agroecology in urban food policies.

[1] İstanbul Metropolitan Municipality (2021). İstanbul Food Strategy Document. https://ipa.istanbul/wp-content/uploads/2021/10/Istanbul-Gida-Strateji-Belgesi.pdf
[2] Karşıyaka Municipality (2023). Karşıyaka Urban Food strategy Document. https://www.karsiyaka.bel.tr/public/uploads/file-1692099383964.pdf
[3] İzmir Metropolitan Municipality (2024). "We are going to be part of this process with İzmir Urban Food Strategy Document" said Mayor Tugay. https://www.izmir.bel.tr/tr/Haberler/tugay-izmir-kentsel-gida-stratejisi-belgesiyle-bu-surecin-parcasi-olacagiz/50150/156
[4] Nilüfer Municipality (2022). The first steps has been taken for urban food policy in Nilüfer

The map below illustrates the various efforts to implement and advance agroecology, highlighting projects that have been or are currently being carried out by civil society organizations, local governments, and the central government.

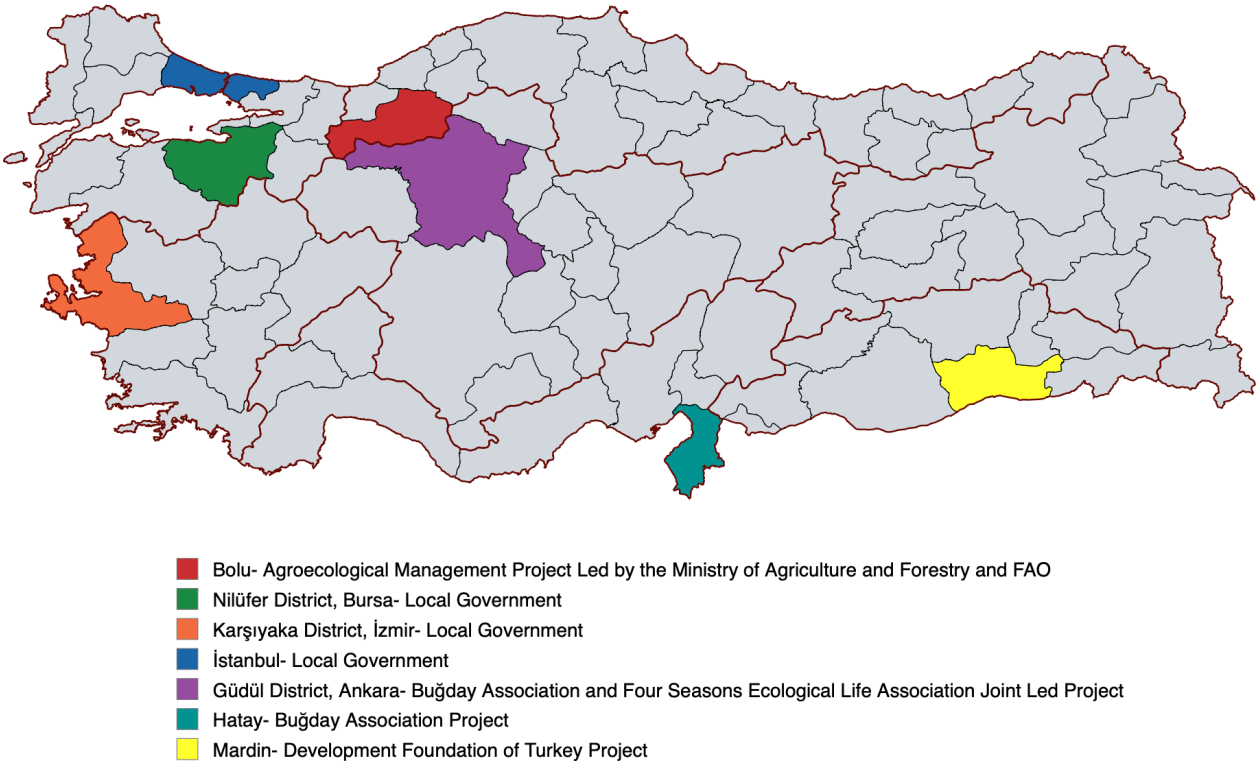


Figure 2. 2: The Map of Agroecology Initiatives in Turkiye. Own Compilation.

Currently, the authoritarian political climate in the country and associated policies are leading to worsening conditions of small-scale farmers (Eren, 2022; Ribeiro, 2023). However, demands for decentralized governance in political, economic and environmental spheres are rising (Turhan, 2016). Hence, this environment created a new role for the local governments to provide support policies for agricultural production with the aim to reach ecological and social targets. The efforts of local governments, especially of those of main opposition party, are therefore growing. On the other hand, the central government has recently started to mention agroecology in their policy documents briefly[5]

[5] Ministry Of Agriculture and Forestry (2022). General Directorate Of Agricultural Reform Climate Change And Agriculture Workshops Result Declaration. https://www.tarimorman.gov.tr/TRGM/Belgeler/İKLİM%20DEĞİŞİKLİĞİ%20VE%20TARIM%20SONUÇ%20BİLDİRGESİ.pdf

and initiating agricultural research and development projects[6,7], in partnership with FAO[8] explicitly targeting agroecology.

In summary, the global trends in agrifood system since the 1980s was echoed in Türkiye, changing the existing structures and paving the way for corporate domination in agriculture. In response, grassroots movements emerged advocating food sovereignty and agroecology, which engage in international alliances to promote agroecology against the corporate industrial food system. A recent channel of support for these initiatives became the local governments, also engaging in international collaborations, aiming to reverse, or restrain the ongoing corporatization and commercialization of agriculture in Türkiye. However, since these developments are rather new, especially on agroecology, there is very limited research conducted. This thesis aims to fill this gap in the literature.

[6] Ministry of Agriculture and Forestry, 2022. The Opening Workshop of the "Agro-Ecological Management System Development Project" was held in Bolu on February 18, 2022. https://www.tarimorman.gov.tr/TRGM/Haber/457/Agro-Ekolojik-Yonetim-Sisteminin-Gelistirilmesi-Projesi-Acilis-Calistayi-18-Subat-2022-Tarihinde-Boluda-Gerceklestirildi

[7] Provincial Directorate of Agriculture, 2023. Ecological Agriculture Comes to Life in Bolu. https://bolu.tarimorman.gov.tr/Sayfalar/Detay.aspx?TermStoreId=368e785b-af33-487d-a98d-c11d5495130b&TermSetId=8be51746-23bf-4e90-a865-9d83081e52fc&TermId=85d441d8-1b52-4085-b7ab-dcd2175585f0&UrlSuffix=1380/Ekolojik-Tarim-Boluda-Hayat-Buluyor

[8] United Nation, Food and Agriculture Organization, 2022. Enhancement of agro-ecological management system through promoting ecosystem-oriented food production. https://openknowledge.fao.org/server/api/core/bitstreams/3b95a803-b190-4da9-9194-1bd38ceadf67/content

3. METHODOLOGY

This chapter aims to introduce and discuss the methodology and material used in this study. As it is discussed in the previous chapters, agroecology is a contested term, both in theory and in practice. Therefore, this research aimed to clarify how agroecology is understood and conceptualized in Türkiye based on three main methods: participant observation (field visits and participation in workshops on agroecology), semi-structured in-depth interviews and surveys (questionnaires) with different stakeholders active in the agroecology debates and policymaking in Türkiye. Below, I first describe the field visits and participants observation that I carried out for this study. And in the next sub-sections, I summarize the survey design and data analysis.

3.1. Field Visits and Participant Observation

First, I reviewed the academic literature and gray literature to capture the main principles and narratives of agroecology relevant globally and for Türkiye. Gray literature mainly included official and unofficial government documents and local government documents, government website posts and media news. In the second step, I carried out exploratory field visits in order to improve my insights for the development of the questions both for the survey and the in-depth interviews.

In October 2022, I visited an agroecological farm in Niğde, Türkiye. During the visit, I consulted with two leading farmers of the region, both of which are activists for agroecological production in Türkiye, to gain a deeper understanding of the issues beyond academic discussions. In March 2023, I attended a seed exchange festival in the Nilüfer District in Bursa, organized by the Nilüfer District Municipality. There, I talked to several representatives from local municipalities of Nilüfer and other cities and districts, about their position in supporting small scale family farming and ecological farming practices, their projects to protect and revive heirloom seeds and supporting agricultural and women's cooperatives. In April 2024, I attended the Gaziantep Ecology Summit to observe and talk to diverse actors of agrifood sector, including policy makers, farmers and academics. This summit was especially useful in connecting with those diverse actors for inviting them to participate in this research and for observing the main initiatives and challenges in the way of adopting ecologically and socially sustainable approach to agriculture. In May 2024, I visited Nilüfer Municipality to observe and collect data on the municipality's agrifood-related initiatives and projects. This visit provided me with a deep insight on the municipality's position on and understanding of agricultural, social, economic and ecological problems in the region and globally. Lastly, again in May 2024, I

attended an agroecology summit located in Kirazlı Village, Aydın. This village is described as an eco-village by locals due to their long history and pioneering role in adopting organic agriculture in Türkiye. The summit, titled 'A Right-Based Approach to Agroecology', brought together a diverse set of participants such as farmers, lawyers, academics, politicians, cooperativists. The focus of the meeting was the concept of agroecology, the struggles involved in it, and recent developments in the field in Türkiye. Additionally, my 2-year experience as a volunteer of the Boğaziçi University Members Consumer Cooperative (BÜKOOP) -a consumer cooperative active for the last 15 years, advocating for food sovereignty and agroecology in Türkiye - provided me with further insights on the ground for understanding the ongoing debates in Türkiye regarding agrifood sector problems from ecological and socially and economically just perspectives.

3.2. In-Depth Interviews and Survey Design

The study only targeted experts, not the public in general. In this case, 'expert' means the practitioners, advocates, policymakers and scholars who possess extensive knowledge on various agricultural applications, techniques and philosophies. In the data collection process, which was anonymous, the experts invited to participate in the online survey were selected based on criterion-based purposive sampling method, ensuring to capture the diverse viewpoints they have on agroecology (Palinkas et al., 2015).

All the participants invited to this study were selected based on their involvement either in the agri-food sector, their theoretical or practical work on alternative modes of agroecology or agroecology-related projects. The survey was designed to be answered anonymously to increase the response rate of stakeholders selected through the purposeful sampling method. Therefore, the only way to identify participants for their institutions was by checking the list of individuals who voluntarily provided their email addresses, but even in this case, responses were not matched with specific individuals.

The online survey consisted of two main modules and a third demographics module and a total of 67 questions. Of the 97 invited participants, 59 completed the online survey, making the response rate for this research approximately 61%. Following this, a representative from each expert group was invited to participate in a follow-up semi-structured in-depth interview. In some cases, more than one interview was conducted for the stakeholder group. The number of online survey and in-depth interview participants for each stakeholder group is shown below.

Table 3. 1. Survey and Interview Participant Information

Stakeholder Group	Number of Participants of the Survey	Number of Stakeholder Participated in the Second Module of the Survey	Number of Stakeholders Interviewed	Interviewee ID
Scholars	5	5	0	-
Farmers	16	14	2	Farmer 1
				Farmer 2
Central Government Representatives	15	10	1	Central Government 1
Local Government Representatives	8	8	2	Local Government 1
				Local Government 2
Civil Society Organizations	15	14	1	Civil Society 1
Total	**59**	**51**	**6**	**-**

The semi-structured in-depth interviews were conducted after the online survey was completed. The interviews were carried out in-person, via phone or video meetings. In other words, this research employed a mixed-method approach, blending survey methodology with semi-structured in-depth interviews, to combine the depth provided by the qualitative method and the breadth provided by the quantitative method (Méndez et al., 2013).

The online survey contained three modules. Module 1 of the survey mainly focused on participants' general understanding of environmental problems, issues within the agricultural sector, the industrial mode of agriculture and their approaches to the concepts of food sovereignty and agroecology. This module included different scales: Yes/No questions, 5-point Likert Scale questions as well as open-ended questions. The main aims of the first module were to (i) warm up the participants for the second module; which is the core part concentrating on agroecology, and (ii)

capture their opinions about the problems of industrial agriculture and on agroecology in general. Only the participants who answered "Yes" to the question "Have you heard of the concept of the Agroecology before?" could continue with the Module 2.

Module 2 included 38 statements that could potentially define agroecology. Participants were asked to indicate to what extent they believed that these defining statements were correct or false. The statements were presented in the 5-point Likert scale, with 1 indicating completely false and 5 completely correct. This module is the core of the survey, which enables us to capture the main discourses on agroecology. The statements used in this Module 2 aimed to cover the diverse perceptions, definitions and discourses that is discussed in the literature, mainly based on the works of Ajates Gonzalez et al. (2018); Altieri & Nicholls (2020); Giraldo & Rosset (2018, 2021, 2023); Jansen (2015); Levidow et al. (2014); López-García et al. (2021); Rosset & Altieri (2017); Snipstal (2015); Özkaya, Yıldız, Özden and Kocagöz (2021). These 38 statements in Module 2 were grouped under 7 categories, similar to Giraldo & Rosset (2022): operational principles and characteristics of agricultural practices, political principles and visions, protagonists, methodological and organizational principles, pedagogic and epistemological principles, economic principles and gender aspect.

Finally, the last module of the survey, Module 3, collected demographic information of the participants. The survey was pre-tested with experts and feedback was used to improve wording and clarity of the survey items. After this, potential participants were then invited to complete the survey online.

3.3. Data Analysis

To analyze the collected data from the surveys, I used the thematic analysis method for open-ended questions in Module 1 and the Exploratory Factor Analysis (EFA) for closed-ended questions that were answered on a 5-point Likert scale in Module 2.

Thematic analysis is a flexible method for identifying the main themes emerging from the qualitative data at hand. The themes that appear in this analysis are considered as recurring patterns that highlight important and interesting points in data (Maguire & Delahunt, 2017). The analysis in the present study followed the steps outlined by Braun & Clarke (2006; p.87): "familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report". The thematic analysis method was employed as a supporting technique to the EFA, rather than being the core analysis technique of the study. It was used to capture the general

understanding of participants of the concepts agroecology and food sovereignty, which was later explored more in depth with the EFA method for Module 2.

Exploratory Factor Analysis (EFA) method was later used to uncover how agroecology is understood and conceptualized by capturing the main definitions and discourses, referred to as "factors", derived from the participants' responses. EFA is an exploratory method, which means it is used to explore the data set, rather than to confirm specific hypotheses (Costello & Osborne, 2005; Osborne, 2014). This makes EFA perfectly suitable for this research, as the goal is to identify the primary perceptions and discourses around agroecology rather than to validate existing theories or prevalent understandings. The IBM SPSS Statistics software (version 29) was used in the analysis and the analysis followed the steps described by Osborne (2014, pp.4-6): "data cleaning, the extraction method selection, determining the number of factors to retain, rotation method selection and interpreting the results".

To conduct EFA, first, I applied Bartlett's Test of Sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy to assess whether the collected data were suitable for EFA analysis. While initial KMO values were low, excluding eight questionnaire items that were repetitive in the survey, improved the KMO measure. In other words, the items that were removed from the study were already addressing an issue that had been addressed or implied by another item. Then, Principal Axis Factoring was selected as the extraction method of the EFA as the data was not normally distributed, and Direct Oblimin was used as the rotation method of the EFA since it allows for some correlation among different factors (as opposed to orthogonal rotation methods which assume that the factors identified in the EFA will be perfectly uncorrelated, which is rarely the case for social sciences) (Osborne, 2014, pp. 33-34).

Then, the Scree Test was utilized for determining the number of factors to be retained for the data at hand. The Scree Test suggested the presence of four factors for the data at hand, but upon checking the items that correlated with these 4 factors in more detail, I decided that a three-factor structure delivered clearer results. This approach that I adopted is in line with the state-of-the-art of the EFA analysis. Indeed, studies emphasize that EFA is "exploratory" in nature and therefore it requires expert judgement to decide on the final number of factors for each data set complementing the results of the Scree Tests (Costello & Osborne, 2005) Then, the Pattern Matrix that was delivered for these three factors was used to identify each questionnaire item "loading" on each factor, i.e. correlating strongly with each factor.

The responses obtained from the in-depth interviews complemented and further refined the insights gathered from the EFA.

4. RESULTS

This chapter presents the quantitative survey results and followed by qualitative findings of the in-depth interviews. In the first part, survey results are presented, and the analysis method is discussed. In the second part, findings from the in-depth interviews are introduced. In this way, the integration of quantitative and qualitative findings provides a comprehensive understanding of how agroecology is understood and conceptualized in Türkiye.

4.1 Descriptive Results of the Survey

This section presents the descriptive results from the online surveys. The survey was completed by a total of 59 participants. The below table summarizes the participants' demographic characteristics for age, gender, education level, occupation and self-reported stakeholder group.

Table 4.1. Demographics of the Survey Participants

Participant Information		
Gender	Male	49.15%
	Female	49.15%
	Other/Prefer Not to Specify	1.7%
Age	18-34	10.16%
	35-44	33.89%
	45-54	30.50%
	55-64	11.86%
	+65	13.55%
Education	Primary or Secondary School	0 %
	High School	1.69%
	Undergraduate Degree	49.15%
	Master's Degree	23.73%
	Doctorate	25.42%
Occupation	Farmer	23.72%
	Scholar	8.47%
	Agricultural Engineers and Technicians	28.81%
	Miscellaneous /Other	38.98%
Self-reported Stakeholder Group	Scholar	8.47%
	Farmer	27.12%
	Central Government	25.42%
	Local Government	13.55%
	Civil Society	25.42%

The descriptive results for Module 1 and Module 2 are also presented below.

Table 4.2. Descriptive Statistics of Module 1 Data

Module 1 Questions						
	Completely Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Completely Agree (59	Mean
	Percentages for each category					
1. I am deeply concerned by climate change, the deterioration of natural resources, and the loss of biodiversity.	1.7	1.7	3.4	6.8	86.4	4.75
2. I believe agricultural production is not possible without the use of chemical inputs such as synthetic fertilizers and agricultural chemicals.	62.7	15.3	8.5	11.9	1.7	1.75
3. I believe that small-scale farmers who use traditional farming methods cause less harm to nature.	0	13.6	11.9	25.4	49.2	4.10
4. I believe that ecological and organic farming should be promoted.	0	1.7	3.4	13.6	81.4	4.75
5. Using hybrid seeds developed and sold by companies is necessary to produce enough food.	42.4	22.0	6.8	22.0	6.8	2.29
6. The priority of agricultural policies should be to increase exports.	42.4	27.1	8.5	15.3	6.8	2.17
7. The government should implement policies to protect local production and small-scale farmers.	0	0	5.1	5.1	89.8	4.85
8. The relationship between producers and consumers should be more direct (through producer markets, cooperative sales points, etc.).	0	0	3.4	13.6	83.1	4.80
9. I believe that intermediaries are necessary between producers and consumers.	39.0	25.4	13.6	20.3	1.7	2.20
10. I believe that industrial agriculture based on monoculture harms nature.	0	1.7	8.5	13.6	76.3	4.64

Table 4.3. Descriptive Statistics of Module 1 Data

11. I believe that there are deep power inequalities in the agri-food system (for example, small producers and agricultural workers being disadvantaged compared to large corporations).	0	0	1.7	13.6	84.7	4.83
12. I believe that a comprehensive transformation is needed to address the deep power inequalities in the agri-food system.	0	0	5.1	6.8	88.1	4.83
13. Who is responsible for ensuring the sustainability in the agricultural sector?	Values in Ratios (…%)					
	All					18.64
	Consumer					5
	Farmers					10.16
	Farmers & Consumer					1.69
	Private Sector					1.69
	State					59.32
	State & Farmers					3.38
14. Have you heard of the concept of Food Sovereignty before?	Yes	83%	No	17 %		
15. What does food sovereignty mean to you? (open-ended question)						
16. Have you heard of the concept of the Agroecology before?	Yes	86.44%	No	13.56%		
17. What does agroecology mean to you? (open-ended question)						
18. Do you think food sovereignty and agroecology are related?	Yes	88.23%	No	11.76%		

Table 4.4. Descriptive Results of Module 2 Data

Module 2 Questions						
	Completely False (1)	Somewhat False (2)	Neither False Nor Correct (3)	Somewhat Correct (4)	Completely Correct (5)	
	Percentages for each category					Mean
1. Agroecology can be adopted on small-scale farms. *	29.41	19.61	23.53	17.65	9.80	2.59
2. Agroecology uses short and direct supply chains.	7.84	5.88	9.80	29.41	47.06	4.02
3. Agroecology is a political movement against the exploitation of humans and nature.	9.80	1.96	7.84	17.65	62.75	4.22
4. The main goal of agroecology is to establish local and just food systems.	3.92	0.00	9.80	19.61	66.67	4.45
5. A top-down command chain is compatible with agroecological principles.	58.82	11.76	19.61	1.96	7.84	1.88
6. Financial support provided by the state for agroecological production harms farmers' autonomy.	35.29	23.53	27.45	11.76	1.96	2.22
7. Agroecological farmers should organize under cooperatives and unions. *	1.96	1.96	15.69	31.37	49.02	4.24
8. Agroecology relies on the ancestorial local knowledge.	7.84	13.73	17.65	43.14	17.65	3.49
9. Farmers' adopting agroecology individually is not enough; agroecology requires social organization and collective movement.	1.96	0.00	1.96	21.57	74.51	4.67
10. Industrial agriculture has devalued women's knowledge and skills in agriculture and nature.	9.80	7.84	9.80	21.57	50.98	3.96
11. Agroecological food products primarily target consumers in high-income groups.	41.18	7.84	21.57	23.53	5.88	2.45
12. In agroecological farming, the use of high technology and machinery is deprioritized. *	11.76	39.22	17.65	25.49	5.88	2.75
13. Agroecology returns the importance of the knowledge and skills on nature and agriculture possessed by women. *	5.88	3.92	7.84	37.25	45.10	4.12
14. The income of farmers and wealth of the region should be increased by exporting agroecologically produced goods.	7.84	19.61	27.45	17.65	27.45	3.37

15. Agroecology is one of the technical solutions that can be used to reduce problems in industrial agriculture.	11.76	13.73	11.76	33.33	29.41	3.55
16. Agroecology should be promoted by international institutions, agribusinesses, and states.	19.61	9.80	9.80	31.37	29.41	3.41
17. Agroecology opposes market-oriented production and policies.	5.88	7.84	13.73	31.37	41.18	3.94
18. Agroecology can be implemented on large or medium-scale farms.	9.80	13.73	19.61	27.45	29.41	3.53
19. Agroecology argues to minimize the use of external inputs (hybrid seeds, agrochemicals, synthetic fertilizers, etc.) as much as possible.	1.96	1.96	5.88	23.53	66.67	4.51
20. Agroecology and organic farming are the same thing.	37.25	31.37	11.76	15.69	3.92	2.18
21. Farmers can apply agroecology on part of their land to earn additional income; it is not necessary to implement it on the entire farm.	41.18	21.57	23.53	9.80	3.92	2.14
22. Farmers learn from each other and learn by seeing and experiencing.	1.96	0.00	15.69	37.25	45.10	4.24
23. Agroecology aims to build and foster solidarity between farmers and consumers.	0.00	0.00	13.73	17.65	68.63	4.55
24. The state should decide on agroecological practices and projects to be implemented.	35.29	17.65	33.33	5.88	7.84	2.33
25. Farmers do not know the scientific basis of agriculture; they need to be educated by agricultural engineers.	15.69	15.69	19.61	21.57	27.45	3.29
26. Producers can transition to agroecology on their own lands; it is an individual endeavor.	7.84	17.65	23.53	29.41	21.57	3.39
27. Agroecologically produced goods and foods should be more expensive compared to conventional products.	25.49	23.53	13.73	27.45	9.80	2.73
28. Decisions in agroecology should be made through participatory processes. *	0.00	0.00	7.84	27.45	64.71	4.57
29. Agroecological producers should organize in and through local and alternative food networks. *	0.00	1.96	5.88	17.65	74.51	4.65
30. The state should support agroecology with subsidy and support programs for farmers.	1.96	0.00	3.92	27.45	66.67	4.57
31. Agroecology aims to improve the agricultural system with gradual reforms, it does not call for a holistic transformation.	19.61	19.61	25.49	15.69	19.61	2.96
32. Agroecology can be carried out by agribusinesses.	27.45	17.65	17.65	23.53	13.73	2.78
33. Monoculture (single crop farming) can be practiced in agroecological farming.	50.98	23.53	11.76	5.88	7.84	1.96

34. Agroecology is closely related to farmers' struggle for food sovereignty.	1.96	3.92	7.84	13.73	72.55	4.51
35. The main goal in agroecology is to increase the economic gains of producers.	13.73	35.29	25.49	21.57	3.92	2.67
36. Agroecology aims for social justice in the agricultural sector.	1.96	0.00	9.80	25.49	62.75	4.47
37. Agroecology should be spread by peasants and farmers. *	0.00	3.92	7.84	35.29	52.94	4.37
38. Local governments should support agroecological farmers through public procurement.	1.96	1.96	5.88	31.37	58.82	4.43
* Statements excluded from the Exploratory Factor Analysis (EFA) in order to improve the KMO measure and make the EFA analysis results more robust.						

4.2 Analysis of Module 1

Module 1 of the survey aimed to collect data on the general approach of the participants to various topics for agrifood issues. The module had 21 questions that covered a wide range of topics, including environmental awareness and climate change, perspectives on the necessity of using chemical inputs and hybrid seeds to feed the population, and comparisons between traditional agriculture and industrial agriculture. Additionally, this module addressed different policies targeting agrifood exports and protection provided by the state for small-scale farmers, necessity for direct relationships between food producers and consumers versus the need for intermediaries, and perspectives on monoculture practices. Participants were also asked about their understanding of power imbalances and asymmetries within the agrifood sector, the need for a holistic transformation, as well as their prior knowledge and understanding of food sovereignty and agroecology. The question types in this module varied from Likert-scale questions, multiple choice questions to open-ended questions. The summaries for the multiple-choice and Likert Scale questions are presented above in the Table 4.1

There tends to be a near consensus for the questions on climate change (93.2%). Respondents mainly indicated that climate change, depletion of natural resources and biodiversity loss concerns them; and they think that industrial agriculture harms nature (89.9%). A great majority of the respondents also indicated that supporting ecological and organic agriculture is necessary (95%) the state's responsibility to support local production and small-scale farmers (94.9%), the need for direct markets where producer and consumer can meet (96.7%), the harms of monoculture and industrial agriculture (89.9%), existence of power inequalities in the agrifood system (98.3%)and the need for a holistic transformation in the agrifood system (94.9%).

It is also worth noting that there were no striking differences in the answers of the different stakeholder groups for the Module 1. The general picture therefore involves the idea that the majority of the respondents support the idea that there are disturbing power imbalances and unsustainable level of harms caused by industrial agricultural system and the need for state intervention. However, the scope of and political agenda behind these interventions may vary. This support may range from promoting agroecology as the new-organic farming, or in other words, a within-system solution or alternative that relies on market mechanisms and third-party private certifications, benefiting only medium- and large-scale producers and a fine-tuning tool without disturbing any power structures or, conversely it can aim to radically alter all the local and international relationships for a systemic change in the agricultural sector in the country.

Indeed, the findings from the in-depth interviews with local and central government representatives imply that each institution has different agendas, and their interpretations of what constitutes transformation vary significantly. While local governments try to ignite this transformation from the bottom, supporting unions and agricultural cooperatives, opening up spaces, both physically and conceptually, for collective action, the central government ascribes the leading role to the private sector and foreign market demand, with the aim to design this transformation as a form of improvement and not a structural change of any kind, and to be disseminated from the top-down with the collaboration of public institutions and private sector. A quote from central government's representative is presented below to illustrate how the Ministry of Agriculture and Forestry sees the potential for promoting agroecology:

> "Many sustainable agricultural practices and environmental approaches in agriculture in Türkiye are led by the private sector. Due to the demands of foreign markets for organic and sustainable products from Türkiye, a transition towards these practices has started in the domestic market. In other words, while our farmers and producers were initially unaware, efforts to supply to satisfy these demands began in the 1980s as a result of foreign private sector requests. The private sector plays a crucial role in this regard. When farmers lacked awareness and knowledge, the private sector initiated the change. Organic farming, in particular, sprouted with the funds and purchasing demands from abroad and grew with the support of the ministry." (Central Government 1, 2024).

Strikingly, while the leading actors are private businesses from the viewpoint of the central government, some of the local governments (e.g. Nilüfer District Municipality[9] , Seferihisar District Municipality[10], Karşıyaka District Municipality[11], İzmir Metropolitan Municipality[12]) are trying to work with farmers and consumer cooperatives to spark a change in the agrifood sector and also in societal relations. One of the local government representatives shared the following view to illustrate that the change they are envisioning is based on joint efforts of the local people and the local government and not agribusinesses:

---

[9] Nilüfer Municipality, 2017. Nilüfer Municipality is an example and leader in cooperatives https://www.nilufer.bel.tr/haber/nilufer-belediyesi-kooperatifcilikte-de-ornek-ve-lider

[10]Seferihisar Municipality, 2021. Seferihisar Municipality at Agriculture Summit. http://seferihisar.bel.tr/seferihisar-belediyesi-tarim-zirvesinde/

[11] Karşıyaka Municipality, n.d. Karşıyaka's Roadmap For the Food Crisis is Ready. https://www.karsiyaka.bel.tr/karsiyaka-kentsel-gida-strateji-belgesi-gelecege-isik-olacak

[12] Seferi Keçi, 2021. 'The support of the Metropolitan Municipality to agriculture and cooperatives will continue to increase' https://www.seferikeci.org/2021/05/18/buyuksehir-belediyesinin-tarima-ve-kooperatiflere-destegi-artarak-surecek/

> "Significant changes have occurred in the cultural codes of the villagers in the past. Their confidence was shattered by previous unsuccessful cooperative experiences, leading to increased individualism and consumerism. To break this cycle, we organized various activities and opened spaces such as farmer houses, seed libraries, training houses. Additionally, we founded [agricultural] cooperatives, and tried to support women in producing under cooperatives to help them to gain economic and social independence. The establishment of these cooperatives marked the beginning of a socio-economic change in the villages. Women who once could not walk past the mosque now sell traditional pastries like *çiğbörek* and *gözleme* in front of it, earning money. They are becoming liberated." (Local Government 1, 2024)

The contrast between the central government's and local governments' understanding, and operationalization of agroecology show that there are, indeed, plural and opposite visions for it in Türkiye.

In the second part of the Module 1, after the 5-point Likert-scale questions, four multiple choice questions and two open-ended questions were asked. The first multiple choice question asked who the respondents believe should be responsible for ensuring sustainability in the agricultural sector. 35 of the 59 respondents selected the state as responsible, while 11 chose all the actors, and 6 responses indicated farmers, alone, as responsible.

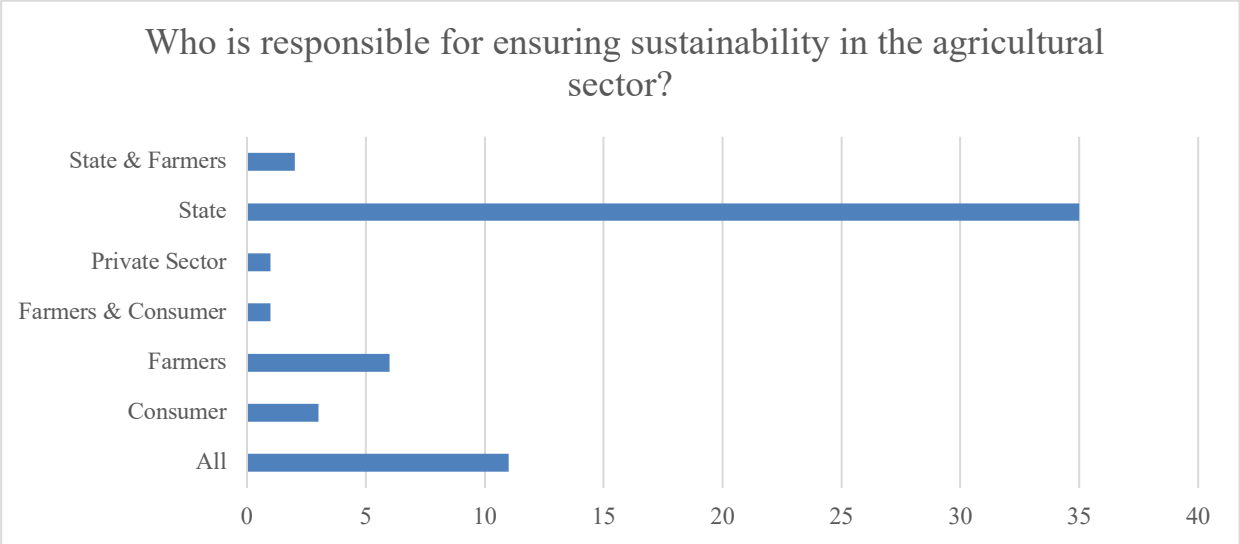


Figure 4. 1: Who is responsible for ensuring sustainability in the agricultural sector?

Following that, participants were asked whether they had ever heard about the concept of "food sovereignty", and next, "agroecology". Then, they were asked what those concepts mean to them with open-ended questions. The responses to the two open-ended questions were analyzed using the thematic analysis method, which is a systematic approach for identifying, analyzing, and reporting patterns, known as themes, within data. Initially, the data was thoroughly read multiple times to gain a comprehensive understanding. During this phase, preliminary codes were generated by pinpointing emerging ideas and concepts directly linked to the participants' answers. These initial codes were then organized into broader themes that reflected recurring patterns across the data. The final step involved defining and naming each theme to clearly articulate the underlying insights and trends identified through the analysis. Out of 59 participants, 51 responded to the agroecology question and 50 responded to the food sovereignty question.

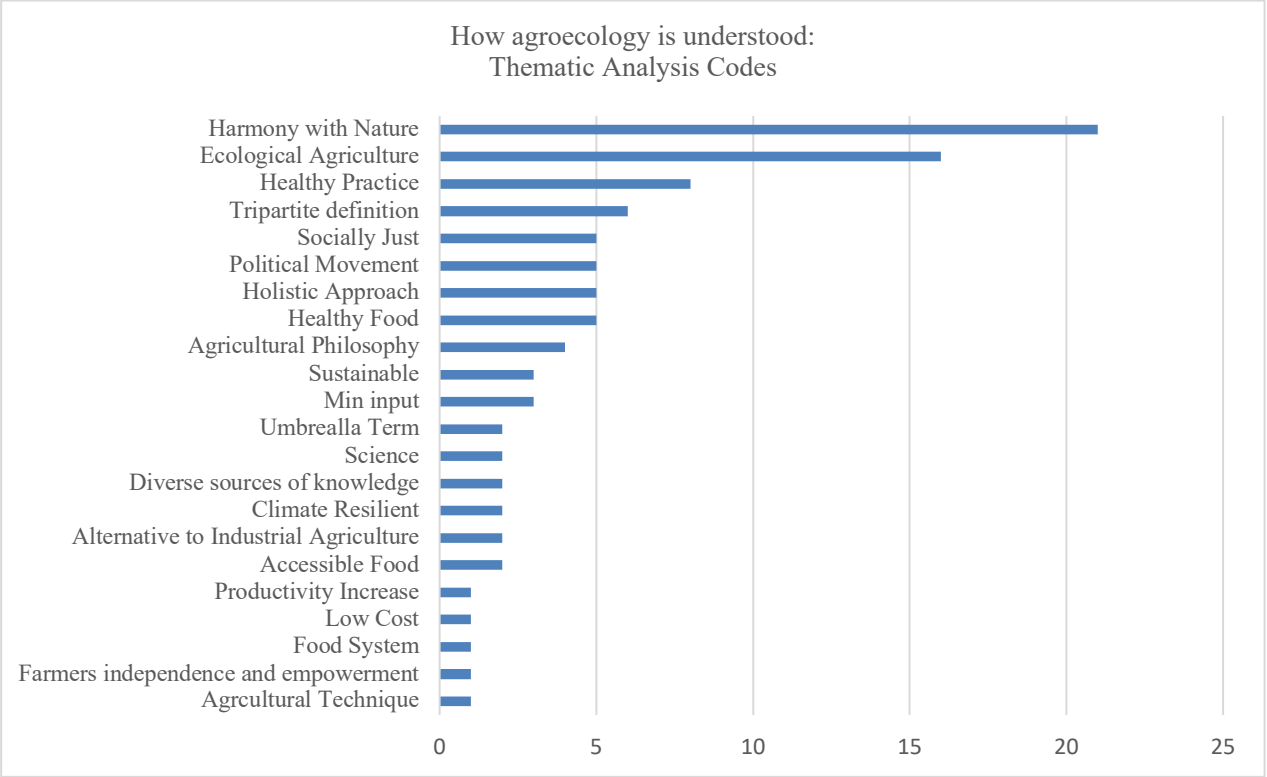


Figure 4. 2: How is agroecology is understood

The answers collected for the open-ended question "What does agroecology mean to you?" illustrated that the agroecology concept was mainly linked to being in harmony with nature (41.17%) and understood as an ecological way of doing agriculture, i.e. ecological agriculture (by 31.37% of the participants). Some of the responses also referred to the loss of connection and cooperation between human activities and nature due to the specific techniques and philosophy of the industrial agriculture. Some respondents (11.74%) explained agroecology using its tripartite definition, namely,

agroecology as a science, a practice and a social movement, as proposed by Wezel et al (2009). Five respondents preferred to emphasize the political aspect of agroecology. Agroecology as a framework that prioritizes being in harmony with nature and respecting other-than-humans was addressed by the majority of the respondents, but it was less frequently accompanied with a critique of industrial agricultural methods. There was also a small number of responses (5.88%) who understood agroecology as a technique for increasing productivity and income of farmers.

Thematic analysis therefore revealed the presence of three main themes for this question:

i) Agroecology as an environmentally friendly agricultural practice: This theme defines agroecology with respect to its environmental sustainability, biodiversity and natural resource conservation benefits. It also acknowledges its superiority in protecting the health of nature, farmers and consumers due to removing the use of agricultural chemicals from the production process. The codes 'agricultural philosophy' and 'harmony with nature' appeared in this theme. There was no to little emphasis on the actors and power relations in this theme. All in all, this theme is characterized by a perception of agroecology conceptualized as a non-political and environmentally sustainable endeavor.

ii) Agroecology as an alternative agrifood system: This theme builds upon the first theme by including political aspects of food systems. It focuses on the power relationship between farmers and consumers, roles of organizations and networks in reshaping that relationship, political processes that shape agricultural sector and the economy as a whole. It encompasses the environmental and ecological critiques of the industrial and agribusiness-dominated agroecology.

iii) Agroecology as a climate-resilient and economically profitable method: This theme is less frequently observed compared to the first two but it focuses on a whole different understanding pertaining to agroecology. This theme considers agroecology as a tool for food security and increasing economic profits from agriculture. It also puts an emphasis on productivity increase and reduced costs generated by no- or low-input agricultural practices. This theme reduces agroecology to an agricultural innovation that mainly aims at increasing economic gains.

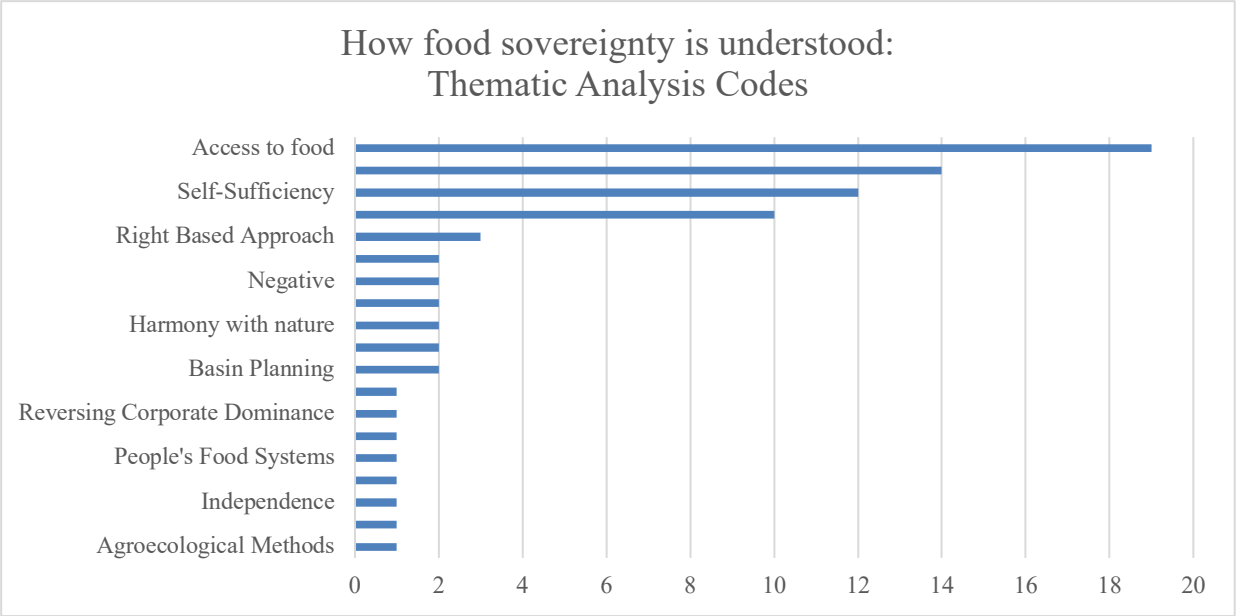


Figure 4. 3. How is food sovereignty understood?

The responses given to the question "What does food sovereignty mean to you?" illustrated that most of the respondent understood this term in relation to access to food (38%), healthy food (28%), self-sufficiency (24%), and autonomy (20%). The examination of occurrence of similar code combinations helps to identify the main themes on this issue.

Food sovereignty was defined by the respondents based on three distinct, yet overlapping themes, introduced below. Each of them encompasses various aspects of food sovereignty, as it aligns with or diverges from established definitions like those in Nyeleni Declaration.

i) Healthy and Accessible Food Systems: This theme emphasizes healthy food, access to food, self-sufficiency and right-based approaches. It closely mirrors the food sovereignty definition provided in the Nyeleni Declaration, as "*the right of peoples to healthy and culturally appropriate food produced through ecologically sound and culturally appropriate methods, and their right to define their own food and agricultural systems*" (Nyeleni Declaration 2007, p. 673). Notably, responses in this theme did not refer much to the autonomy of the farmers, which is a critical element in the Nyeleni declaration. This situation, transferring the sovereignty and autonomy of farmers' to the state and reframing food sovereignty using nationalist sentiments in Türkiye, has been observed in previous research (Gerçek, 2020). This conceptualization of food sovereignty is closer to the 'reformist capitalist' understanding of food sovereignty rather than radical and anticapitalist food sovereignty (Tilzey, 2020).

ii) Empowerment and Equity in Food Systems: The second theme focuses on the agency of the actors within the food system- capacity of actors to influence decisions and policy, their autonomy and need for a power redistribution that leads to a just agrifood system. This theme points to a very important topic in food sovereignty debate in the Turkish context. Historically, agroecology has functioned as the backbone of the country since Ottoman Empire and the majority of the population (80% of the early Republic years and approximately 30% currently) lived relying on the agricultural sector (Adaman, 2022; Adaman et al., 2020). However, food and agriculture has always been "a matter of state" and farmers never held any sovereignty over their own way of producing food (Doğançayır & Kocagöz, 2017, p. 9) In the midst of corporate dominance and neoliberal policies, an understanding of food sovereignty based on the agency of farmers can be evaluated, therefore, as an attempt to democratize the food system.

iii) Food Security: This theme is characterized by a focus on the risk of famine, emphasizing self-sufficiency, local orientation, basin planning and agroecological methods. It illustrates an understanding of food sovereignty that intersects with food security concerns, highlighting the need for local resilience in food production and distribution. However, this themes ignores the fact that the reason of food insecurity was rarely the amount of available food, rather, it is distribution and market structure that disable certain populations from accessing food.

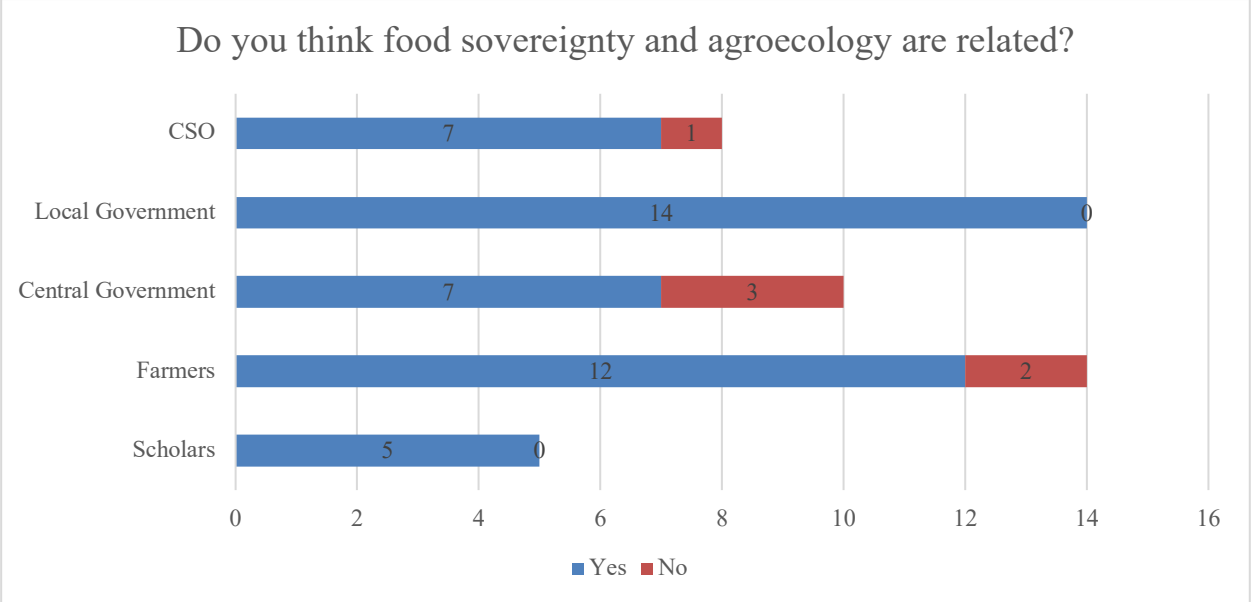


Figure 4. 4: Do you think food sovereignty and agroecology are related?

Lastly, those participants who stated that they have some prior knowledge about agroecology were asked whether they believed that food sovereignty and agroecology are related. 88% of the participants stated that they believe these two terms are related. However, only 70% of respondents from the central government believed the same, while, to the contrary, all representatives from the local government stated Yes to this question. This is a first indication, indeed, as I expected, that there are different understandings and perceptions regarding agroecology for different stakeholder groups. In Türkiye, the policy-makers representing the central government have not yet proposed a clear definition for agroecology, policies and project proposals are either ambiguous in definition or reduce agroecology merely to an agricultural technique, while local governments mostly frame agroecology as a tool for rural and local development.

4.3. Exploratory Factor Analysis for Module 2

Module 2 of the survey contained 38 defining statements for agroecology. The aim of this module was to present all the relevant definitions and viewpoints on agroecology discussed in the academic literature and in practice, based on the ecological, political, philosophical, pedagogical and operational principles. These statements were presented to the respondents using the 5-point Likert scale, 1 indicating that the respondent believes the statement is a completely false definition of agroecology, and 5 a completely correct definition for it.

The seven categories used in the present study rely and further expand on the work of Giraldo & Rosset (2023), as already introduced in the Methodology part of this thesis. The first category mainly aimed to capture the participants' perceptions pertaining to the operational principles and characteristics of agricultural practices within the framework of agroecology. The six statements for this category therefore addressed the issues of monoculture, the use of external input and high-tech machinery, and the scale of the farm. The second category encompassed seven statements on the political principles and visions related to agroecology: focusing on social justice, food sovereignty, right-based approaches, reformist vs revolutionary approaches. The third category focused on the protagonists: six statements aimed to capture the respondents' opinion on which actors should be leading an agroecological transformation in the country. The fourth category contained 7 statements regarding the methodological and organizational principles of agroecology, assessing the respondents' perception on collective action and organizing versus individual efforts, as well as top-down versus bottom-up decision chains and horizontality. The fifth category aimed to understand the pedagogic and epistemological principles such as sources of knowledge and ways of learning via

three statements. The sixth category on the economic principles aimed to understand via seven statements whether the respondents believed that agroecology functions or should function within the sphere of the neoliberal capitalism or should it rather create a new economic reality based on solidarity, sufficiency and respect to nature. More specifically, the statements in this category attempted to uncover whether the respondents associate agroecology with merely increasing economic profits for farmers. Lastly, the seventh category involved the gender aspect via two statements by focusing on the knowledge- and labor- intensive characteristics of the pre-industrial agriculture, mostly fulfilled by women, and whether agroecology can reverse the devaluation of women's' labor and knowledge within industrial agriculture. The number of statements for each category that were presented to the respondents as well as the final number of statements included in the final statistical analysis are presented in the Table 4.4 below.

Table 4.5. Seven Question Categories in Module 2 of the Survey

Question Categories	Initial Number of Questions presented to the respondents	Number of Questions Included in the final statistical Analysis
Operational Principles and Characteristics of Agricultural Practices	6	4
Political Principles and Visions	7	7
Protagonists of Agroecology	6	5
Methodological and Organizational Principles	7	4
Pedagogic and Epistemological Principles	3	3
Economic Principles	7	7
Gender Aspect	2	1
TOTAL	**38**	**31**

Next, the findings from the EFA are presented below. The table 4.4 below demonstrates the three main factors and the associated statements with each factor, which correlated (either positively or negatively) with each factor. It is important to note that as its name suggests EFA is exploratory in nature. That is, the researcher judgement is involved when deciding for the exact final number of factors and the factors are also labeled by the researcher upon inspecting which statements load highly on which factor (Yong & Pearce, 2013). The Pattern Matrix below summarizes these findings.

Table 4.6. Pattern Matrix

Pattern Matrix[a]			
	Factors		
	Discourse 1: Agroecology as a social movement	**Discourse 2: Reformist Agroecology**	**Disource 3: Laissez-faire approach to agroecology**
The main goal of agroecology is to establish local and just food systems.	0.757		
Agroecology argues to minimizing the use of external inputs (hybrid seeds, agrochemicals, synthetic fertilizers, etc.) as much as possible	0.710		
Agroecology aims to build and foster solidarity between farmers and consumers.	0.701		-0.353
Agroecology is closely related to farmers' struggle for food sovereignty.	0.677		-0.373
Agroecology aims for social justice in the agricultural sector.	0.667		
Agroecology opposes market-oriented production and policies.	0.637		
Industrial agriculture has devalued women's knowledge and skills in agriculture and nature.	0.578	-0.301	
Agroecology is a political movement against the exploitation of humans and nature.	0.576		
Agroecology relies on the ancestral local knowledge.	0.511		
Agroecology uses short and direct supply chains.	0.493	0.301	
Farmers' adopting agroecology individually is not enough; agroecology requires social organization and collective movement.	0.405		
Farmers learn from each other and learn by seeing and experiencing.	0.306		
Agroecology should be promoted by international institutions, agribusinesses, and states.		0.737	
Agroecology can be carried out by agribusinesses.		0.683	
The income of farmers and wealth of the region should be increased by exporting agroecologically produced goods.		0.677	
Farmers do not know the scientific basis of agriculture; they need to be educated by agricultural engineers.		0.596	

Monoculture (single crop farming) can be practiced in agroecological farming.		0.579	
Agroecology aims to improve the agricultural system with gradual reforms, it does not call for a holistic transformation.		0.557	0.369
A top-down command chain is compatible with agroecological principles.	-0.426	0.547	
Agroecology is one of the technical solutions that can be used to reduce problems in industrial agriculture.		0.539	
The state should decide on agroecological practices and projects to be implemented.	-0.436	0.500	
Agroecology can be implemented on large or medium-scale farms.		0.491	
The main goal in agroecology is to increase the economic gains of producers.		0.474	
Farmers can apply agroecology on part of their land to earn additional income; it is not necessary to implement it on the entire farm.		0.426	
Agroecology and organic farming are the same thing.		0.308	
The state should support agroecology with subsidy and support programs for farmers.	0.354		-0.525
Local governments should support agroecological farmers through public procurement.	0.328		-0.414
Financial support provided by the state for agroecological production harms farmers' autonomy.			0.394
Agroecological food products primarily target consumers in high-income groups.			0.377
Producers can transition to agroecology on their own lands; it is an individual endeavor.			0.310
Agroecologically produced goods and foods should be more expensive compared to conventional products.			0.309
Extraction Method: Principal Axis Factoring.			
Rotation Method: Oblimin with Kaiser Normalization.[a]			
a. Rotation converged in 13 iterations.			

The first factor is associated with an understanding of agroecology based on the collective struggles of farmers and considers it as a social movement. This factor can therefore be called "Transformative agroecology". The second factor, which labeled as "Reformist Agroecology", is closely related with a discourse that frames agroecology as tool to fix the problems of the existing food regime, where powerful actors such as international institutions, agribusinesses and the state lead the possible solution pathways. The same finding is also obtained in the in-depth interviews with the central government representative. This factor considers agroecology as a source of extra income and as being compatible with top-down policy approaches. In other words, the second factor gives us a very different frame for agroecology than the first one. The third factor "Laissez-Faire Approach to agroecology" is again very different from the first factor but closer to the second one, as it advocates for an agroecology that should be shaped only by market mechanisms and sees agroecology as not being eligible for government support. Further, agroecology should only be operational as long as it is economically feasible, according to this third factor.

More specific discussion for each factor and associated statements are summarized below:

Factor 1: Transformative Agroecology

This factor is built upon the principles of locality, social justice, food sovereignty; redesign of the food system and agrifood policies; exploitative dynamics within industrial agriculture towards women, nature and humans in general; social organization and collective movement; removing intermediaries; horizontal knowledge and experience sharing; the need for institutional support to agroecological farmers; and it opposes top-down approaches and an external decision-maker imposing programs and projects. The items showed in this factor are listed below (in a descending order, i.e. the items provided first have higher correlations with Factor 1 than items following them):

- The main goal of agroecology is to establish local and just food systems.
- Agroecology argues to minimize the use of external inputs (hybrid seeds, agrochemicals, synthetic fertilizers, etc.) as much as possible
- Agroecology aims to build and foster solidarity between farmers and consumers.
- Agroecology is closely related to farmers' struggle for food sovereignty.
- Agroecology aims for social justice in the agricultural sector.
- Agroecology opposes market-oriented production and policies.

- Industrial agriculture has devalued women's knowledge and skills in agriculture and nature.
- Agroecology is a political movement against the exploitation of humans and nature.
- Agroecology relies on the ancestral local knowledge.
- Agroecology uses short and direct supply chains.
- Farmers' adopting agroecology individually is not enough; agroecology requires social organization and collective movement.
- Farmers learn from each other and learn by seeing and experiencing.
- A top-down command chain is compatible with agroecological principles. (Negative)
- The state should decide on agroecological practices and projects to be implemented. (Negative)
- The state should support agroecology with subsidy and support programs for farmers.
- Local governments should support agroecological farmers through public procurement.

Factor 2: Reformist Agroecology

The second factor is called “Reformist Agroecology”, similar to the work of Giraldo & Rosset (2023): this approach prioritizes gradual reform rather than structural transformation and put responsibility and the leading role on the agribusinesses, international institutions and the state, it employs ecological monoculture and agrees that agroecology can be employed by agribusinesses and in medium and large scale farms, rely on externally and top-down decided policies and foster individuality, promote agriexports for generating wealth for rural and farmers, claim farmers are uninformed or under-informed on scientific basis of agriculture and need to be educated, and that agroecology is a technical solution to reduce problems of industrial agriculture. Lastly, this agroecology framing sees organic agriculture and agroecology as the same concept. The items which correlated with Factor 2 are provided below, again in a descending order:

- Agroecology should be promoted by international institutions, agribusinesses, and states.
- Agroecology can be carried out by agribusinesses.
- The income of farmers and wealth of the region should be increased by exporting agroecologically produced goods.
- Farmers do not know the scientific basis of agriculture; they need to be educated by agricultural engineers.
- Monoculture (single crop farming) can be practiced in agroecological farming.

- Agroecology aims to improve the agricultural system with gradual reforms, it does not call for a holistic transformation.
- A top-down command chain is compatible with agroecological principles.
- Agroecology is one of the technical solutions that can be used to reduce problems in industrial agriculture.
- The state should decide on agroecological practices and projects to be implemented.
- Agroecology can be implemented on large or medium-scale farms.
- The main goal in agroecology is to increase the economic gains of producers.
- Farmers can apply agroecology on part of their land to earn additional income; it is not necessary to implement it on the entire farm.
- Agroecology and organic farming are the same thing.
- Industrial agriculture has devalued women's knowledge and skills in agriculture and nature. (Negative)

Factor 3: Laissez-Faire Approach to Agroecology

This factor can be best represented by Friedmann's "corporate-environmental food regime" concept and bifurcated markets for high-end and low-end consumers (2005). Laissez-Faire Approach to Agroecology does not contain any emphasis on solidarity-based relationships and food sovereignty, rather it opposes these. It argues that state and local governments should not provide agroecological farmers with any support and leave them to market mechanisms to either survive and thrive or perish. Thus, this third factor has been called the Laissez-Faire approach to agroecology. Moreover, this factor explicitly targets consumers with high income and argues that agroecologically produced goods should be more expensive. This factor therefore points to the capitalist co-optation of agroecology, which implies "taking advantage of the environmental crisis created by the agro-industrial system to do new business and try to maintain or reestablish the conditions for ongoing capitalist production" (Giraldo & Rosset, 2023, p.21). Similarly, Giraldo and Rosset called a similar discourse for agroecology the "neoliberal and false agroecology" (2023).

The items showed in this factor are listed below:

- The state should support agroecology with subsidy and support programs for farmers (Negative).

- Local governments should support agroecological farmers through public procurement (Negative).
- Financial support provided by the state for agroecological production harms farmers' autonomy.
- Agroecological food products primarily target consumers in high-income groups.
- Producers can transition to agroecology on their own lands; it is an individual endeavor.
- Agroecologically produced goods and foods should be more expensive compared to conventional products.
- Agroecology aims to build and foster solidarity between farmers and consumers (Negative).
- Agroecology is closely related to farmers' struggle for food sovereignty (Negative).

The findings thus demonstrate that indeed, in line with the literature, agroecology discourses and perceptions in Türkiye are diverse and complex. These findings will be further evaluated in detail and in reference to the relevant academic literature in the Discussion section. Before that, the next subsection gives an overview of the findings from the in-depth interviews that potentially support the presence of the three factors relevant for the context of Türkiye pertaining to agroecology.

4.4 . Semi Structured In-Depth Interviews

As discussed in previous sections, semi-structured in-depth interviews were carried out following the online survey in order to gain further insights from each stakeholder group. For this, representatives from each stakeholder group, typically one or two, were invited to the interviews. They were asked about their definitions of agroecology, their personal or institutional motivations for adopting, practicing, or promoting agroecology, their assessments of other actors' efforts, and the obstacles and risks facing the implementation of agroecology.

As a result, a total of six in-depth interviews were conducted. In order to increase responsiveness and depth, the interviews were not recorded, however, specific themes emerging in them and key quotes were diligently documented during these sessions. The qualitative data gathered from these discussions were thoroughly reviewed multiple times to ensure comprehensive understanding, and participants’ key quotes were categorized under several categories: definitions of agroecology, potential policy alternatives for promoting agroecology and associated risks, motivations for adopting and promoting agroecology, challenges related to mental transitions toward agroecological practices,

assessments of other actors' efforts, the role of agricultural training, and the use of traditional agricultural methods.

In the interviews, the participants referred to different conceptualizations and understanding of the agroecology concept. For instance, traditional agricultural methods were only mentioned by two interviewees: a farmer who is not very familiar with the term "agroecology," and a civil society worker involved in a rural development project that promote agroecology among migrant and minority farmers in Southeastern Anatolia. Similarly, only two respondents—a self-identified agroecological farmer and a local government representative—contributed to the category discussing challenges related to mental transitions toward agroecological practices. This category primarily concerned societal perceptions about the aesthetics of food and farming, such as what constitutes healthy-looking produce and well-maintained fields. The observations and quotes gathered during the interviews were used as complementary material incorporated into the Discussion section whenever needed.

5. DISCUSSION

This section evaluates the findings from the survey within the broader context of agroecology research, especially for the research on the different understandings and definitions of agroecology. Specific insights gained from the semi-structured in-depth interviews are integrated to support and enrich the analysis.

The core of the present study is based on the second module of the survey, which was carefully designed to capture the main understandings, perceptions, and discourses around agroecology. Participants evaluated a range of statements that defined various aspects of agroecology. This approach allowed me to identify distinct discourses—"groups of statements that provide a language for talking about a particular topic" (Hall, 1992, p.291 as cited in Hall, 2004) and "systems of interacting statements that guide and control the conduct of a topic" (Hall, 2004, p. 347). Similarly, Foucault posited that a discourse constructs the topic, determines how ideas are implemented, defines its boundaries, objectives, and constraints, and exerts control over its temporal and historical contexts, thereby signaling and exercising power (Foucault, 1972). Given that agroecology is a field marked by contention, with various groups advocating for different definitions and uses, understanding these discourses is crucial. Thus, identifying and analyzing these diverse discourses does not only illuminate the ongoing power struggles but also clarifies the positions and arguments of the various camps more distinctly.

Through the exploratory factor analysis (EFA) used in the present study three distinct categories of discourses became visible in the academic and public debates on agroecology: Transformative Agroecology, Reformist Agroecology, and Laissez-Faire Approach to Agroecology. While the Transformative Agroecology discourse advocates for a politically engaged perspective, the Laissez-Faire Agroecology adopts a minimal intervention stance, and Reformist Agroecology lies somewhere in between these two extremes. Each discourse advocates for distinct agricultural practices, scales, protagonists, principles and philosophies, resulting in diverse policy implications. These categorizations are well-aligned with existing research and theoretical frameworks. Next, I present and discuss each of these discourses in relation to the literature complementing them with the observations and insights I obtained through the in-depth interviews that I carried out. I first present the two ends of the spectrum; the Laissez-Faire Approach to Agroecology, and then the Transformative Agroecology; and finally, the middle-ground between them, the Reformist Agroecology.

5.1 The Laissez-Faire Approach to Agroecology

The Laissez-Faire Approach to Agroecology discourse aligns closely with the definition of "junk-agroecology", referring to the corporate co-optation of the term "agroecology" and emphasizing the label rather than the underlying principles (Alonso-Fradejas et al., 2020). Additionally, this discourse resonates closely with the neoliberal and false agroecology categorization outlined by Giraldo & Rosset (2023) focusing predominantly on market-driven structures rather than authentic agroecological practices and social formations. This market orientation is also fueled by this agroecology approach's target of higher-income consumers seeking healthier and sustainably produced foods and willing to pay a premium price for it, thereby not fostering a broader and more inclusive agroecological transition. Consequently, the market for agroecological products is shaped primarily by consumer demand rather than alternative set of relationships, locality, ecological and social principles and transformative agricultural practices. This situation underscores the limited role envisioned for government intervention, whether through public procurement by local governments or support for farmers via subsidies, challenging the potential for a holistic agroecological transformation that includes all socio-economic groups. Additionally, Laissez-Faire Approach to Agroecology discourse frames agroecology as an individual endeavor and opposes farmers' collective struggle for food sovereignty, which emphasizes solidarity-based, direct relationships between farmers and consumers. It is "entirely profit- and image-driven, and target market opportunities opened up by green capitalism" as Giraldo and Rosset portrayed (2023, p.3).

Lastly, it must be noted that this discourse and definition of agroecology can be seen as the direct product of what Friedmann calls corporate-environmental food regime (Friedmann, 2005). Accordingly, this food regime features two distinct methods of organizing the food supply chain that cater separately to poor and rich consumers; in the present study as well, this discourse operationalizes agroecology as a brand for its higher-quality and more expensive products following the notions of environmental sustainability and traceability (Friedmann, 2005).

Similarly, one of the representatives of local governments interviewed noted that the lack of underlying principles of agroecology is a fundamental point for the perspective adopted by the central government:

> "When the organic agriculture regulations were first announced in Türkiye, it was very progressive and pioneering. The ministry had very well-intended and qualified experts that

> worked hard on those topics in the past. However, the later developments didn't match the expectations. They did not incorporate the principles of those approaches, instead mixed them with each other. They don't really care about good agricultural practices or organic agriculture, nor their underlying principles." (Local Government 1, 2024)

In light with this insight, it becomes easier to interpret the implicit meaning of the central government representative's following words:

> "Agroecology is an umbrella term that encompasses a broad spectrum. It includes sustainable agricultural practices and organic farming. In fact, agroecology covers all agricultural practices, including regenerative, organic, and good agriculture. While it's not a policy per se, agroecology acts like an umbrella organization. It represents a group of agricultural practices that prioritize more environmentally-friendly and healthier approaches. […] Essentially, the concept of agroecology isn't drastically different from normal agricultural systems; it's just that by leaving no chemical residues in food, it involves practices that are less harmful to human and environmental health, thus more ecological." (Central Government 1, 2024)

In this definition of agroecology, the political essence is completely ignored, reducing agroecology to merely ecological agriculture and prioritizing its health benefits. Since it is not possible to solve environmental degradation and declining productive capacity within the self-destructive agro-capitalist system, this approach can only function as a tool to turn the ongoing crisis into an opportunity for restructuring agricultural capital(Giraldo & Rosset, 2018, p.10). The goal is to reduce costs and increase profits under the guise of what they claim to be agroecology (Giraldo & Rosset, 2018).

5.2. Transformative Agroecology

The other extreme the Transformative Agroecology discourse provides clear borders. First, it puts the minimum external agricultural input principle at the beginning of the list, indicating that it rules out the alternative biological inputs produced by the same companies that sell agrotoxins. This is important because rather than creating a new and expensive dependency of other types of inputs, that principle sees the agroecosystem as a closed system that has everything it needs within itself. It also relies on traditional agricultural knowledge, uses and tries to revive this knowledge shaped by

the local conditions of the region and reflect the culture of the community. These two are the main principles reflecting the understanding of agroecology this discourse adopts.

As Rosset and Altieri argue, the root of agroecology lies within the agricultural practices of peasants and farmers (2017). Even though they may not call what they do "agroecology" per se, nor do they know the term agroecology, one of the farmers -who has no knowledge about agroecology- I conduct an interview, provided a clear example of this situation:

> "We use traditional methods. An artificial lake, for example, is a traditional weed control method. We flood the fields to combat rice pests. We prevent rice pests this way; we do not use agricultural chemicals. Crows, sparrows, and a lot of birds are our helpers. They eat grasshoppers and other pests. We fight harmful animals and plants in cooperation with friendly animals" (Farmer 2, 2024).

Another farmer I interviewed, who has prior knowledge about agroecology and calls himself an agroecological farmer, shared their strategy as follows:

> "Back then, for example, I used to use mycorrhizal acid, but I started producing worm compost, and the worm compost already meets this need. Then I stopped using the store-bought acid, there are no external inputs in my production now." (Farmer 1, 2024)

The second crucial aspect of agroecology that discourse shed light is the social struggle, justice and solidarity principles. This agroecology discourse highlights the social movement pillar of agroecology, presenting an alternative to contemporary social structures; individualistic, consumerist, and inequality driven:

> "The issue is not just about farming in harmony with nature but also about eating healthy, creating a healthy community, and, beyond that, making producers independent [i.e. autonomous] and promoting localization, among other dimensions. [...] Agroecology is powerful in this respect: it makes it possible to establish self-sufficient communities that are not dependent on external sources. There are also social and community dimensions to it. Therefore, its social dimension should not be considered as separate from the concept of agroecology. If you reduce agroecology merely to a technique, you risk overlooking its social and philosophical dimensions, which can easily hollow out its essence. However, an agroecology movement that is embraced by people spread through a culture of solidarity

> blends traditional knowledge with new techniques and aims to empower people while preserving their autonomy and independence can become a threat rather than being threatened by capitalism" (Civil Society 1, 2024).

The economic principles related with this discourse are, specifically, opposing market-oriented policies and the use of market mechanisms as the primary shapers of social and agricultural structures. This discourse also prioritizes short and direct supply chains. Coupled with an emphasis on farmers' food sovereignty, this discourse aligns with the type of food sovereignty advocated by La Via Campesina and what Tilzey describes as "radical and counter-hegemonic approach to food sovereignty" (Tilzey, 2019, p.626). This is the approach that determined agroecology as a pillar of food sovereignty to abolish and transform the capitalist system (Via Campesina, 2017).

The Transformative Agroecology discourse also integrates critical principles regarding gender inequality and horizontal knowledge and experience sharing. The gender aspect highlights the rooted inequalities in labor division, particularly the caregiving responsibilities traditionally shouldered by women, which have endowed them with extensive knowledge and skills in managing and nurturing agricultural environments. Industrial agricultural practices often undermine these roles, particularly in seed collection and care—activities that are vital for sustaining life and resisting industrial invasion (Friends of the Earth International, 2021). The horizontal knowledge sharing is also very important, since implicitly it opposes the idea that farmers are ignorant, and they need to be trained or educated by agricultural engineers and technicians. It is true that scientific information did and can greatly contribute to employment of easier, more environmentally friendly and efficient methods; but it should not be the only way. Farmers should engage with each other, share their problems, solutions, experiences and innovations. Giraldo and McCune (2019) highlights the importance of "horizontal social processes of agroecology, particularly the example of campesino a campesino" – the Farmer-to-Farmer movement in which poor farmers of Latin America learn from each other how to protect the environment while making a living out of it (2019, p.19).

Finally, this second discourse emphasizes the necessity for support from both local and central governments to promote and expand agroecology within the country, a topic that is contentious within academic circles. Some researchers, like Gonzalez De Molina (2013) argue that policy support is crucial and beneficial for scaling up agroecological practices. Conversely, others, such as Rosset and Altieri (2017), caution against the potential pitfalls, noting that such governmental support may foster additional dependencies and entrench power imbalances between farmers and political actors, potentially jeopardizing the sustainability and effectiveness of agroecological initiatives. However,

some of the interviewees posited that state or government support for farmers is crucial for the transitioning phase to agroecology:

> "The soil has become addicted to the agricultural chemicals and synthetic fertilizers. If you cut off these inputs immediately, the soil will become unproductive for a while. This harms the agroecology movement. The transition needs to be slow. If you aim for a rapid transition, farmers will experience yield losses while producing without chemicals, and it will take 3-5 years for their yields to return to previous levels. But during this transition period, farmers will suffer from economic losses for 3-5 years. Who will compensate for this? This is why subsidies and government support are very important. As long as the losses are not compensated, farmers cannot abandon synthetic fertilizers and agricultural chemicals at the expense of incurring losses. Therefore, regenerative agriculture subsidies should be provided by the state, and agroecological transition should be planned, with appropriate policy designs made accordingly." (Civil Society 1, 2004).

In summary, this discourse positions agroecology as a transformative approach. In this, it in stark contrast to industrial agriculture, identifying agroecology as an alternative to industrial agriculture rather than a complementary method to it.

In contrast to the existing literature (Holt Gimenez and Shattuck, 2011), the Transformative Agroecology approach identified in this study is not characterized by a duality involving the progressive and the radical trends. According to Holt Gimenez and Shattuck (2011) the progressive trend within social movements (i.e. food sovereignty and agroecology movement), primarily led by NGOs, focuses on practical alternatives to industrial agriculture. While it shares similarities with the reformist approach, it maintains a commitment to broader, holistic goals rather than diluting its principles. On the other hand, the radical trend places a stronger emphasis on structural reforms to markets and is generally led by grassroots movements. However, the in-depth interviews and my field visit observations provided me with the following insights: Indeed, the grassroots movements and farmers organizations seem to adopt more radical stances, while NGOs and at times, local governments show characteristics of a rather progressive trend. NGOs and local governments point out the market's and the wider economic system's unsustainability and aim to tackle it but they give the priority to first creating alternatives to industrial agriculture and showing an alternative agricultural model is feasible.

All in all, the present study confirms the argument in the literature that agroecology's connection with food sovereignty – not sub-hegemonic definitions of it, but rather counter-hegemonic definitions based on farmers', indigenous people's, fisher folks' and local people's autonomy and agency- determines its radically transformative capacities (Holt-Giménez & Altieri, 2012).

5.3. Reformist Agroecology

The discourse of Reformist Agroecology can be seen as a middle ground approach as it places the state and agribusinesses at the forefront as the primary actors. In this perspective, the agroecological transition is viewed not as a transformative process but rather as a managed transition by the state. Accordingly, agroecology needs to be taught to farmers who lack the necessary scientific knowledge by agricultural engineers and technicians. This position ignores the fact that agroecology is fed by different sources of knowledge; local, traditional, ancestorial, indigenous, practical and scientific knowledge (Barrios et al., 2020; Méndez et al., 2013) and completely overlooks the value of the knowledge held by practitioners and indigenous people that accumulated over time, through experiences and observations of several generations. While it is true that the last 60 years of heavy incorporation of industrial methods and mechanization have eroded farmers' knowledge and skills, portraying them as ignorant actors in need of formal training from the same paradigm that caused the current ecological crisis is far from a real solution. In line with Harvey's (2003), this is an intentional output of the capitalist system; agricultural capitalism prevents the user to have knowledge on design and function of the technologies. It is a method of blocking the way of self-organization since farmers become dependent on external consultancy and technicians' guidance.

While the Reformist Agroecology discourse puts emphasis on the scientific knowledge of agricultural engineers and technicians and overlooks the local, traditional, and practical knowledge of farmers, the in-depth interviews revealed that technicians and agricultural engineers often lack the necessary skills to navigate alternative agricultural practices such as organic, regenerative, and agroecological farming. At least two of the participants in the in-depth interviews shared this opinion:

> "We initially started with the idea that all our production in municipal lands and urban gardens would be done under ecological conditions, but as the team expanded, this situation changed somewhat. The use of fertilizers and pesticides began. This situation unfolds as follows: ecological production is carried out and success is achieved, but sometimes a pest appears. Seeing this, new agricultural engineering graduates want to use the methods involving agricultural chemicals that they learned in the university, and they do so. In other words, the

> agricultural education provided in universities does not teach farming through ecological methods, i.e., without pesticides, synthetic fertilizers, or biological control methods. It is even difficult to find an agricultural engineer who understands what agroecology really is." (Local Government 1, 2004)

Similarly, another interviewee, an agroecological farmer, noted that their experience of formal education in an agricultural technician program lacked this specific knowledge on agroecology:

> "There is considerable confusion surrounding the concept of agroecology. Concepts such as organic farming, good agricultural practices, and agroecological farming are often conflated, leading to numerous incorrect applications. For instance, I enrolled in an organic farming technician program and completed it to earn my diploma. Previously, I had taken several courses on different agricultural approaches. However, I observed that there are very few instructors specializing in this field in vocational schools and colleges. The education provided is generally insufficient, which leads to uninformed production practices." (Farmer 1, 2024).

It should be also noted here that the Department of Agroecology at the Faculty of Agriculture, Ege University, Izmir was closed after the coup d'etat of 1980 (Özkaya et al., 2021). Özkaya and his colleagues point out that after the 1980s, the lives of farmers were drastically transformed, and their traditional knowledge disappeared. Furthermore, they note that "the academic world is now conducting science according to the new needs of the capital"(Özkaya et al., 2021, p.12). As such, in contrast to European universities, for instance, there is no agroecology department or institute currently in the country that would specifically carry out scientific studies on agroecology. Instead, at several universities in Türkiye, one of the departments that receives a lot of attention within the Faculties of Agriculture is called "Plant Conservation Department", which mainly focus on the conservation of the cultivated crop (instead of the ecosystem surrounding it) via the use of herbicides and pesticides, that is in stark contrast to the agroecology approach, which is based on experimenting with no-input agriculture (i.e. without chemical pesticides and herbicides) in order to conserve all plant species in the ecosystem along with sustaining the crop yields. Yet, clearly, there is a clear role for scientific studies, educational activities and vocational schools for supporting agroecology practices in the country. One very useful suggestion for this purpose was provided by another interviewee from the civil society:

> "People, often from the middle class, who used to be white-collar workers and have now moved away from the city, are turning towards agroecology, permaculture, and eco-friendly agriculture. However, I don't believe that agroecology has sufficiently reached farmers. At this point, educational institutions similar to the village institutes of the past should be re-established and spread across the country. Instead of standardized education, training should be tailored to the biological, geological, and agricultural characteristics and needs of each region. This approach would facilitate the spread and strengthening of agroecology. Demographic structure, climate, and soil are all important factors. Education, planning, and production should be localized and specific to each area." (Civil Society 1, 2024).

Efforts to establish vocational schools that provide free, high-quality agricultural education to disadvantaged students are also increasingly important. For instance, the Ecology Summit I attended in Gaziantep in spring of 2024 aimed to announce the Keklicek Vocational Technical High School project and solicit contributions[13]. This school is designed to offer high-quality education in agroecology, regenerative agriculture, and agricultural technology to enhance the region's resilience to climate change and use agroecology as a means to empower disadvantaged students.

Moving forward, the goal of agroecology within this discourse is to generate more wealth and income, for farmers, the region and the country. However, there is no emphasis on how this wealth would be distributed, no signal of the lack of intermediaries or on justice. The most important aspect that this discourse clearly highlights is that it perceives agroecology and organic farming as synonymous. It suggests that monocultures are acceptable methods within agroecology and that agroecology can be adopted in medium- and large-scale farms.

Even with the greatest intentions of actors who adopt and promote this discourse of agroecology, this framing still is a form of co-optation and can be considered as false agroecology (Giraldo & Rosset, 2023, p.9) This is because it misses the essence of agroecology and combine it with methods and principles of industrial agriculture. In contrast to Giraldo and Rosset's Emancipatory Agroecology and Transformative Agroecology discourses, the Reformist Agroecology lacks emphasis on farmers' empowerment and autonomy, ecological balance and integrity. However, it puts market dynamics on the forefront, positing itself closer to the Laissez-Faire Approach to Agroecology. Moreover, the reformist tendencies within the corporate food regime and the Reformist Agroecology discourse identified in the present study increase the potential of the co-optation of

[13] Gaziantep Doğuş Gazetesi, 2024. *Ekoloji Zirvesi Notlarım.* https://www.gaziantepdogus.com/2024-ekoloji-zirvesi-notlarim Accessed: 4 August 2024

agroecology. In other words, they risk “converting smallholders and agroecology into means (rather than barriers) for the expansion of industrial agriculture” (Holt Gimenez & Altieri, 2012, p.97). However, a further expansion of industrial agriculture would lead to increased biodiversity loss, weakened global agroecosystem resilience, and a subsequent rise in global hunger, while also reducing the resilience and mitigation capacity in the face of climate change” (Holt Gimenez & Altieri, 2012).

The analysis method I adopted in this study (i.e. EFA) does not allow me to link the actors with each discourse directly, however, it is still possible to see the linkages between this discourse and central government’s position, in line with the dichotomy between the “institutions’ agroecology” and “social movements agroecology” identified by Giraldo and Rosset (2017). The Reformist Agroecology discourse identified in this thesis tends to be in line with the institutions’ agroecology approach in that study which was described by the following elements: “a peasant class bereft of profitability, efficiency, and productivity, and requiring capital and technology”, where “traditional lifestyles of small producers … framed in terms of poverty, underdevelopment and backwardness, … and the only salvation is through governmental agroecology projects and green, corporate contract farming” (Giraldo & Rosset, 2017, p.12). In other words, in the Turkish context, government-led agroecological development is prioritized by the Reformist discourse. This approach and understanding of development reinforce the existing structures of capitalist agriculture, which have driven small-scale farmers to the brink of extinction due to economic hardship. This discourse also confirms the reformist trend identified by Holt Gimenez and Shattuck (2011). In their research, they identify dual trends within corporate food regime, one (the neoliberal trend) that complete overlooks the environmental aspects and mostly focuses on further reinforcing the industrial agriculture, corporate dominance and neoliberalism, and the second (the reformist trend) functions emphasizes the role of the state to eradicate poverty and diminish inequalities through minor reforms yet not opposing the continuation of the given economic system (Holt Giménez and Shattuck, 2011, p. 121).

All in all, the three discourses identified via the EFA in the present research was useful for identifying and understanding, more in depth, the ongoing debates and efforts around agroecology in Türkiye. The interviewees explained their institution's or their own perspectives on defending ecological integrity, nature, and more-than-human entities, as well as promoting economic empowerment and societal improvement through agroecology. Even efforts that are critiqued as false agroecology or co-optation in the literature seemed to be well-intended by different participants of the study. However, while some approaches or discourses like Transformative Agroecology genuinely work towards the empowerment of farmers, peasants, women, minorities, and migrants,

others like the reformist approach primarily aim to generate profit for big agri-business corporations or reinforce existing power imbalances.

However, in Türkiye, grassroots movements (e.g. the Farmer's Union), alternative food networks, NGOs (such as Buğday Association and Four Seasons Ecological Living Association, Development Foundation of Türkiye), and local governments (e.g. Nilüfer Municipality) are making enormous efforts to defend and promote agroecology (Çetinkaya, 2022; Kadirbeyoğlu & Sümer, 2012; Özatağan & Karakaya Ayalp, 2020; Ribeiro, 2023). These efforts provide some evidence that an alternative model can work as a viable alternative to industrial agriculture, which threatens the lives of both humans and non-humans.

Nonetheless, the existence of these three diverse discourses may constitute a warning sign against the potential of co-optation of the term agroecology by dominant economic actors of the agrifood businesses. Examining previous global examples, we observe that the incorporation of agroecology into national policies has followed various paths ranging from technological requirements imposed by state institutions to bottom-up approaches initiated by grassroots initiatives. For instance, countries like Cuba transitioned to agroecology due to input scarcity following the collapse of the Soviet Union (Boillat et al., 2012; Rivera-Núñez et al., 2020). In contrast, Brazil and Nicaragua adopted agroecology as national policy in response to strong grassroots demand and social movements (Van Den Berg et al., 2022). Despite grassroots efforts, the adoption of agroecology in France and the UK has been problematic. France's government faced harsh criticism when it framed agroecology as the ecological intensification of agricultural practices, sparking concerns about its effectiveness (Levidow, 2015; Rivera-Ferre, 2018). In the UK, agroecology has been reduced to a mere set of techniques, resulting in its co-optation (Ajates Gonzalez et al., 2018). In India, initially praised for peasant-led agroecology, state-promoted agroecology has been co-opted, limiting transformative possibilities and perpetuating capitalism, colonialism, and patriarchy (Ramdas & Pimbert, 2024). Ramdas and Pimbert (2024) highlighted that in South India agroecology failed to address land and resource inequality, instead supported non-inclusive and hierarchical knowledge systems, tied production to agribusiness-controlled export chains, and is currently governed by institutions favoring capital over labor.

Similarly, concepts such as organic agriculture, sustainable intensification, and conservation agriculture have been dominated by Global North countries and corporations, reducing their potential to transform the agri-food system. While these concepts emerged as strong alternatives to the industrial agriculture, in time, they lost their focus on equity and justice. This can well happen to the

concept of agroecology and it is a question mark whether agroecology will be able to uphold its social principles (Bless et al., 2023). Therefore, the integration of agroecology into the mainstream national policies and engagement of major economic actors with the concept presents both opportunities and risks. The Transformative Agroecology discourse adheres to the agroecology's core principles of social justice, food sovereignty, and its political stance challenging corporate dominance in agriculture (Gordon et al., 2023). Yet, whether this discourse will be able to resist co-optation via the Reformist or Laisse-Faire type of discourses in Türkiye is still unknown. As previous national examples have shown, attempts to strip agroecology of these principles by both agribusiness corporations and government entities increase the risk of co-optation as agroecology gains popularity.

Lastly, the present study was subject to limitations in directly linking specific actors with the identified agroecology discourses, primarily due to the use and scope of Exploratory Factor Analysis (EFA). While in-depth interviews provided valuable insight into the similarities between stakeholders' narrations of agroecology and the identified discourses, they did not fully capture the nuances of these relationships. Therefore, future research is needed to in order to specifically link which actors are related with which discourse of agroecology. Specifically, it should explore in greater detail how each discourse aligns with specific stakeholders and investigate the underlying motivations of those who adopt the Reformist and Laissez-Faire Approach to Agroecology discourses.

6. CONCLUSION

This research aimed to identify the main discourses, perceptions, and understandings around agroecology in Türkiye. The research utilized a blend of quantitative and qualitative methods to capture the mechanisms shaping agroecological practices and perceptions among diverse stakeholders—from government officials and academics to local farmers and activists. The study identified three distinct discourses: Transformative Agroecology, Reformist Agroecology, and the Laissez-Faire Approach to Agroecology. Each discourse presents a unique take on agroecology, advocating different practices, principles, and policy implications.

Based on this analysis, the Transformative Agroecology approach emerged as a political movement aiming at significant systemic changes, challenging power imbalances that disadvantage women, minorities, immigrants, and the poor within the agricultural system. This discourse further advocates for minimal use of external inputs and for the revival and integration of traditional, local, and intergenerationally transferred knowledge to build self-sustaining agricultural communities. In contrast to being a complementary practice to industrial agriculture, it positions itself as a radical alternative, with a clear focus on achieving farmers' food sovereignty.

On the other hand, Reformist Agroecology takes a more moderate stance, seeking incremental changes within the existing structures of industrial agriculture. This approach heavily emphasizes educating and training farmers, often blaming them for excessive agrochemical use and the sector’s sustainability issues. Moreover, it supports implementing agroecology through state-driven top-down projects aimed at generating wealth and income from agriexports, without addressing the distribution of wealth.

Lastly, this discourse of agroecology permits its implementation on large-scale farms in the form of ecological monocultures, utilizing bioinputs produced by the same global agri-business companies that manufacture agrochemicals. The Laissez-Faire Approach can be considered the opposing pole to the Transformative Agroecology discourse, as the former selectively adopts the principles offered by agroecology, mainly relaying on the functioning of markets without any government support or subsidies for farmers. This discourse portrays agroecology as an individual endeavor rather than a collective movement and strongly opposes any political framing of agroecology, significantly diverging from the transformative goals of agroecology. In this discourse, agroecology is primarily carried out for its health benefits, especially when compared to foods produced through industrial

agricultural methods that involve the heavy use of chemical fertilizers, pesticides, and herbicides. Consequently, these agroecological products should be sold at premium prices, catering mainly to higher-income consumers. However, overall, this discourse signals the potential of co-optation of agroecology by corporate interests that prioritize profit over genuine sustainability and social equity.

Overall, the increasing awareness and recognition of agroecology in Türkiye, both in scientific and public debates, is promising for a transformative change in the agricultural sector. Yet, the diverging view points and the specific nature of this recognition is essential to enhance the potential of agroecology for promoting social, economic, and ecological sustainability and justice. This study contributed, therefore, to the literature on critical agrarian studies and food sovereignty by specifically assessing the diverse ways of operationalizing agroecology in Türkiye. As such, the findings are hoped to assist further scientific studies, activists and policy-makers with a cautionary final note warning against the cooptation of the term by economically powerful actors in the corporate agri-food system.

REFERENCES

Adaman, F. (2022). Sürdürülebilir Ve Dirençli Bir Gıda Sistemi: Türkiye Analizi. İstanbul Politikalar Merkezi. İstanbul.

Adaman, F., Avci, D., Kocagöz, U., & Yeniev, G. (2022). İklim Değişikliği Bağlamında Tarımda Dönüşümün Politik Ekolojisi. İstanbul Policy Center.

Ajates Gonzalez, R., Thomas, J., & Chang, M. (2018). Translating Agroecology Into Policy: The Case Of France And The United Kingdom. *Sustainability*, 10(8), 2930. https://Doi.Org/10.3390/Su10082930

Alonso-Fradejas, A., Forero, L. F., Ortega-Espès, D., Drago, M., & Chandrasekaran., K. (2020). Junk Agroecology: The Corporate Capture Of Agroecology For A Partial Ecological Transition Without Social Justice. Friends Of The Earth International, Transnational Institute And Crocevia.

Altieri, M. A., & Nicholls, C. I. (2020). Agroecology: Challenges And Opportunities For Farming In The Anthropocene. *International Journal Of Agriculture And Natural Resources*, 47(3), 204–215. Https://Doi.Org/10.7764/Ijanr.V47i3.2281

Anderson, C. R., Bruil, J., Chappell, M. J., Kiss, C., & Pimbert, M. P. (2019). From Transition to Domains of Transformation: Getting to Sustainable and Just Food Systems through Agroecology. *Sustainability*, 11(19), 5272. https://doi.org/10.3390/su11195272

Araghi, F. (2009). The Invisible Hand And The Visible Foot: Peasants, Dispossession And Globalization. In A. H. Akram-Lodhi & C. Kay (Eds.), *Peasants And Globalization: Political Economy, Rural Transformation And The Agrarian Question* (Pp. 111–147). Routledge.

Barrios, E., Gemmill-Herren, B., Bicksler, A., Siliprandi, E., Brathwaite, R., Moller, S., Batello, C., & Tittonell, P. (2020). The 10 Elements Of Agroecology: Enabling Transitions Towards Sustainable Agriculture And Food Systems Through Visual Narratives. *Ecosystems And People,* 16(1), 230–247. Https://Doi.Org/10.1080/26395916.2020.1808705

Bell, M. M., & Bellon, S. (2018). Generalization Without Universalization: Towards An Agroecology Theory. *Agroecology And Sustainable Food Systems*, 42(6), 605–611. Https://Doi.Org/10.1080/21683565.2018.1432003

Bell, M. M., & Bellon, S. (2021). The Rhetorics Of Agroecology: Positions, Trajectories, Strategies. In *Agroecological Transitions, Between Determinist And Open-Ended Visions* (Pp. 289–309). Peter Lang.

Bellwood-Howard, I., & Ripoll, S. (2020). Divergent Understandings Of Agroecology In The Era Of The African Green Revolution. *Outlook On Agriculture*, 49(2), 103–110. Https://Doi.Org/10.1177/0030727020930353

Bernard, B., & Lux, A. (2017). How to feed the world sustainably: An overview of the discourse on agroecology and sustainable intensification. *Regional Environmental Change*, 17(5), 1279–1290. https://doi.org/10.1007/s10113-016-1027-y

Bernstein, H. (2013). Food sovereignty: A sceptical view. Paper presented at the Conference on Food Sovereignty: A Critical Dialogue, Yale University, September 14–15, 2013.

Bernstein, H. (2016). Agrarian Political Economy And Modern World Capitalism: The Contributions Of Food Regime Analysis. *The Journal Of Peasant Studies*, 43(3), 611–647. Https://Doi.Org/10.1080/03066150.2015.1101456

Bittencourt, T. P. (2019). For An Agroecological Brazil: An Analysis Of The Political Construction Of Discourse. Federal Rural University Of Rio De Janeiro.

Bless, A., Davila, F., & Plant, R. (2023). A Genealogy Of Sustainable Agriculture Narratives: Implications For The Transformative Potential Of Regenerative Agriculture. *Agriculture And Human Values,* 40(4), 1379–1397. Https://Doi.Org/10.1007/S10460-023-10444-4

Boillat, S., Gerber, J.-F., & Funes-Monzote, F. R. (2012). What Economic Democracy For Degrowth? Some Comments On The Contribution Of Socialist Models And Cuban Agroecology. *Futures*, 44(6), 600–607. Https://Doi.Org/10.1016/J.Futures.2012.03.021

Braun, V., & Clarke, V. (2006). Using Thematic Analysis In Psychology. *Qualitative Research In Psychology*, 3(2), 77–101. Https://Doi.Org/10.1191/1478088706qp063oa

Büyükyılmaz, M. (2020, July 2). Üreticiler Ve Uzmanlar Agroekoloji Ile Ticarileşmenin Arka Planını Anlattı: Organik Tarım Ama Nasıl? Independent Türkçe. Https://Www.Indyturk.Com/Node/205041/Haber/%C3%Bcreticiler-Ve-Uzmanlar-Agroekolojiile-Ticarile%C5%9Fmenin-Arka-Plan%C4%B1n%C4%B1-Anlatt%C4%B1-Organik

Carlile, R., Kessler, M., & Garnett, T. (2021). What Is Food Sovereignty? TABLE. Https://Doi.Org/10.56661/F07b52cc

Çetinkaya, S. C. (2022). Güdül İlçesi'ndeki Kırsal Turizmin Sürdürülebilir Kırsal Kalkınma Stratejisi Bağlamında Değerlendirilmesi. *Ankara Üniversitesi Çevrebilimleri Dergisi*, 9(2), 74–91.

Clapp, J. (2014). Food Security And Food Sovereignty: Getting Past The Binary. *Dialogues In Human Geography*, 4(2), 206–211. Https://Doi.Org/10.1177/2043820614537159

Clay, E. (2003). Food Security: Concepts And Measurement. In Trade Reforms And Food Security: Conceptualizing The Linkages (Pp. 25–34). FAO.

Costello, A. B., & Osborne, J. (2005). Best Practices In Exploratory Factor Analysis: Four Recommendations For Getting The Most From Your Analysis. Https://Doi.Org/10.7275/JYJ1-4868

De Souza, C. C. (2022). The Role Of The State In Agroecological Transitions [Master's Thesis]. Utrecht University.

Doğançayır, C. M., & Kocagöz, U. (2017, April). Operationalizing Food Sovereignty: A Critical Approach From An Ongoing Experiment In Türkiye. The Future of Food and Challenges for Agriculture in the 21st Century: Debates About Who, How And With What Social, Economic And Ecological Implications We Will Feed The World.

Edelman, M. (2014). Food Sovereignty: Forgotten Genealogies And Future Regulatory Challenges. *The Journal Of Peasant Studies*, 41(6), 959–978. Https://Doi.Org/10.1080/03066150.2013.876998

Eren, Z. C. (2022). Rising Authoritarian Neoliberalism In Rural Türkiye: Change And Negotiation Of Women In A Gendered Agribusiness In Western Anatolia. In İ. Borsuk, P. Dinç, S. Kavak, & P. Sayan (Eds.), A*uthoritarian Neoliberalism And Resistance In Türkiye*. Palgrave Macmillan. Https://Doi.Org/10.1007/978-981-16-4213-5_3

Espinosa-García, F. J., De La Barrera, E., & González Jácome, A. (2024). The Conceptual Babel Of Agroecologies Is Related To Their Diverse Origins And Objectives. *Agroecology And Sustainable Food Systems*, 48(1), 4–16. Https://Doi.Org/10.1080/21683565.2023.2270938

Ewert, F., Baatz, R., & Finger, R. (2023). Agroecology For A Sustainable Agriculture And Food System: From Local Solutions To Large-Scale Adoption. *Annual Review Of Resource Economics,* 15(1), 351–381. Https://Doi.Org/10.1146/Annurev-Resource-102422-090105

Farmer's Union. (2020, March 22). Çiftçi-Sen Kuruldu. Çiftçiler Sendikası. Retrieved August 5, 2023, From Https://Www.Ciftcisen.Org/2020/03/22/Ciftci-Sen-Kuruldu/

Foucault, M. (1972). *The Archaeology Of Knowledge And The Discource On Language*. Pantheon Books.

Francis, C., Lieblein, G., Gliessman, S., Breland, T. A., Creamer, N., Harwood, R., Salomonsson, L., Helenius, J., Rickerl, D., Salvador, R., Wiedenhoeft, M., Simmons, S., Allen, P., Altieri, M., Flora, C., & Poincelot, R. (2003). Agroecology: The Ecology Of Food Systems. *Journal Of Sustainable Agriculture*, 22(3), 99–118. Https://Doi.Org/10.1300/J064v22n03_10

Friedmann, H. (2005). From Colonialism To Green Capitalism: Social Movements And Emergence Of Food Regimes. In Research In *Rural Sociology And Development* (Vol. 11, Pp. 227–264). Emerald (MCB UP). Https://Doi.Org/10.1016/S1057-1922(05)11009-9

Friedmann, H., & Mcmichael, P. (1989). Agriculture And The State System: The Rise And Decline Of National Agricultures, 1870 To The Present. *Sociologia Ruralis*, 29(2), 93–117. Https://Doi.Org/10.1111/J.1467-9523.1989.Tb00360.X

Friends Of The Earth International. (2021). Dismantling Patriarchy While Building Food Sovereignty (A Friends Of The Earth International Position Paper.).

Giraldo, O. F., & Mccune, N. (2019). Can The State Take Agroecology To Scale? Public Policy Experiences In Agroecological Territorialization From Latin America. *Agroecology And Sustainable Food Systems,* 43(7–8), 785–809. Https://Doi.Org/10.1080/21683565.2019.1585402

Giraldo, O. F., & Rosset, P. M. (2018). Agroecology As A Territory In Dispute: Between Institutionality And Social Movements. *The Journal Of Peasant Studies,* 45(3), 545–564. Https://Doi.Org/10.1080/03066150.2017.1353496

Giraldo, O. F., & Rosset, P. M. (2021). Principios Sociales De Las Agroecologías Emancipadoras. *Desenvolvimento E Meio Ambiente*, 58. Https://Doi.Org/10.5380/Dma.V58i0.77785

Giraldo, O. F., & Rosset, P. M. (2023). Emancipatory Agroecologies: Social And Political Principles. The Journal Of Peasant Studies, 50(3), 820–850. Https://Doi.Org/10.1080/03066150.2022.2120808

Gliessman, S. (2007). *Agroecology: The Ecology Of Sustainable Food Systems.* Taylor & Francis Group.

Gliessman, S. (2015). Fixing A Broken Food System With Agroecology. *Agroecology And Sustainable Food Systems,* 39(9), 953–954. Https://Doi.Org/10.1080/21683565.2015.1071722

Gonzalez De Molina, M. (2013). Agroecology And Politics. How To Get Sustainability? About The Necessity For A Political Agroecology. *Agroecology And Sustainable Food Systems*, 37(1), 45–59. Https://Doi.Org/10.1080/10440046.2012.705810

Gordon, E., Davila, F., & Riedy, C. (2023). Regenerative Agriculture: A Potentially Transformative Storyline Shared By Nine Discourses. *Sustainability Science,* 18(4), 1833–1849. Https://Doi.Org/10.1007/S11625-022-01281-1

Hall, S. (2004). Foucault And Discourse. In C. Seale (Ed.), *Social Research Methods: A Reader* (Pp. 345–349). Routledge.

Harvey, D. (2003). *The New Imperialism*. Oxford University Press.

Holdo, M. (2019). Cooptation and non-cooptation: Elite strategies in response to social protest. *Social Movement Studies,* 18(4), 444–462. https://doi.org/10.1080/14742837.2019.1577133

Holt-Giménez, E. (2006). *Campesino a campesino: Voices from Latin America's farmer to farmer movement.* Food First. Oakland, CA.

Holt Giménez, E., & Shattuck, A. (2011). Food Crises, Food Regimes And Food Movements: Rumblings Of Reform Or Tides Of Transformation? *Journal Of Peasant Studies,* 38(1), 109–144. Https://Doi.Org/10.1080/03066150.2010.538578

Holt-Giménez, E., & Altieri, M. A. (2012). Agroecology, Food Sovereignty And The New Green Revolution. *Journal Of Sustainable Agriculture,* 120904081412003. Https://Doi.Org/10.1080/10440046.2012.716388

Ince, A., & Kadirbeyoğlu, Z. (2020). The Politics Of Food: Commoning Practices In Alternative Food Networks In Istanbul. In D. Özkan & G. Baykal Büyüksaraç (Eds.), Commoning The City: Empirical Perspectives On Urban Ecology, Economics And Ethics.

IPC. (2015). Declaration Of The International Forum For Agroecology. International Planning Committee For Food Sovereignty. Https://Www.Foodsovereignty.Org/Forum-Agroecology-Nyeleni-2015-2/

Jansen, K. (2015). The Debate On Food Sovereignty Theory: Agrarian Capitalism, Dispossession And Agroecology. *The Journal Of Peasant Studies*, 42(1), 213–232. Https://Doi.Org/10.1080/03066150.2014.945166

Jordan, C.F. (2013). A History of Unsustainability in Agriculture. In: *An Ecosystem Approach to Sustainable Agriculture. Environmental Challenges and Solutions*, vol 1. Springer, Dordrecht. https://doi.org/10.1007/978-94-007-6790-4_2

Kadirbeyoğlu, Z., & Sümer, B. (2012). The Neoliberal Transformation Of Local Government In Türkiye And The Contracting Out Of Municipal Services: Implications For Public Accountability. *Mediterranean Politics*, 17(3), 340–357. Https://Doi.Org/10.1080/13629395.2012.725301

Karakaya Ayalp, E., Yılmaz, M. C., Geçer Sargın, F., Kuban, B., & Akgül Mahrebel, G. (2022). Roadmaps To Foster Urban Food System Transitions: Multi-Level Implementations In Nilüfer, Türkiye. T*he European Journal Of Research And Development,* 2(2), 400–410. Https://Doi.Org/10.56038/Ejrnd.V2i2.87

Kelinsky-Jones, L. R., Niewolny, K. L., & Stephenson, M. O. (2023). Building Agroecological Traction: Engaging Discourse, The Imaginary, And Critical Praxis For Food System Transformation. *Frontiers In Sustainable Food Systems,* 7, 1128430. Https://Doi.Org/10.3389/Fsufs.2023.1128430

Kocagöz, U. (2016, August 24). Gıda Egemenliği: Bir Örgütlenme Kavramı. Karasaban. Https://Www.Karasaban.Net/Gida-Egemenligi-Bir-Orgutlenme-Kavrami/

Kocagöz, U. (2019, December 1). Gıda Krizi Karşısında Agroekoloji. Gazete Duvar. Https://Www.Gazeteduvar.Com.Tr/Forum/2019/12/01/Gida-Krizi-Karsisinda-Agroekoloji

Levidow, L. (2015). European Transitions Towards A Corporate-Environmental Food Regime: Agroecological Incorporation Or Contestation? *Journal Of Rural Studies,* 40, 76–89. Https://Doi.Org/10.1016/J.Jrurstud.2015.06.001

Levidow, L., Pimbert, M., & Vanloqueren, G. (2014). Agroecological Research: Conforming—Or Transforming The Dominant Agro-Food Regime? *Agroecology And Sustainable Food Systems,* 38(10), 1127–1155. Https://Doi.Org/10.1080/21683565.2014.951459

López-García, D., Cuéllar-Padilla, M., De Azevedo Olival, A., Laranjeira, N. P., Méndez, V. E., Peredo Y Parada, S., Barbosa, C. A., Barrera Salas, C., Caswell, M., Cohen, R., Correro-Humanes, A., García-García, V., Gliessman, S. R., Pomar-León, A., Sastre-Morató, A., & Tendero-Acín, G. (2021). Building Agroecology With People. Challenges Of Participatory Methods To Deepen On The Agroecological Transition In Different Contexts. *Journal Of Rural Studies*, 83, 257–267. Https://Doi.Org/10.1016/J.Jrurstud.2021.02.003

Maguire, M., & Delahunt, B. (2017). Doing A Thematic Analysis: A Practical, Step-By-Step Guide For Learning And Teaching Scholars. 8(3).

Mcmichael, P. (2006a). Global Development And The Corporate Food Regime. In *Research In Rural Sociology And Development* (Vol. 11, Pp. 265–299). Emerald (MCB UP). Https://Doi.Org/10.1016/S1057-1922(05)11010-5

McMichael, P. (2006b). Peasant prospects in the neoliberal age. *New Political Economy*, *11*(3), 407–418. https://doi.org/10.1080/13563460600841041

Mcmichael, P. (2009). A Food Regime Genealogy. T*he Journal Of Peasant Studies*, 36(1), 139–169. Https://Doi.Org/10.1080/03066150902820354

Mcmichael, P. (2013). *Food Regimes And Agrarian Questions*. Practical Action Publishing. Https://Doi.Org/10.3362/9781780448787

Mcmichael, P. (2014). Historicizing Food Sovereignty. *The Journal Of Peasant Studies,* 41(6), 933–957. Https://Doi.Org/10.1080/03066150.2013.876999

Méndez, V. E., Bacon, C. M., & Cohen, R. (2013). Agroecology As A Transdisciplinary, Participatory, And Action-Oriented Approach. *Agroecology And Sustainable Food Systems*, 37(1), 3–18. Https://Doi.Org/10.1080/10440046.2012.736926

Nizam, D., & Yenal, Z. (2020). Seed Politics In Türkiye: The Awakening Of A Landrace Wheat And Its Prospects. *The Journal Of Peasant Studies*, 47(4), 741–766. Https://Doi.Org/10.1080/03066150.2019.1708725

Nyéléni. (2007). Nyéléni Declaration. Https://Nyeleni.Org/IMG/Pdf/Declnyeleni-En.Pdf

Osborne, J. W. (2014). *Best Practices In Exloratory Factor Analysis*. Createspace Independent Publishing Platform.

Özatağan, G., & Karakaya Ayalp, E. (2020, September). Kır-Kent Ayrımı Aşınırken Tarımda Yaşanan Değişimler. Türkiye Kentleri Ve Bölgeleri: Kavram, Kuram, Planlama Yaklaşımları, Mevcut Politikalar Ve Kurumsal Yapıyı Gözden Geçirme Zamanı. 7. Kentsel Ve Bölgesel Araştırmalar Sempozyumu, Mersin, Türkiye.

Özden, T., & Özkaya, F. (2021). In T. Özkaya, M. Y. Yıldız, U. Kocagöz, & F. Özden (Eds.), *Agroekoloji: Başka Bir Tarım Mümkün*, Metis.

Özden, F., Özkaya, T., Kocagöz, U., & Yıldız, M. Y. (2021). *Agroekoloji: Başka Bir Tarım Mümkün*. Metis.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful Sampling For Qualitative Data Collection And Analysis In Mixed Method Implementation Research. *Administration And Policy In Mental Health And Mental Health Services Research*, 42(5), 533–544. Https://Doi.Org/10.1007/S10488-013-0528-Y

Patel, R. (2009). Food Sovereignty. *The Journal Of Peasant Studies,* 36(3), 663–706. Https://Doi.Org/10.1080/03066150903143079

Patel, R. (2012). The Long Green Revolution. *The Journal of Peasant Studies*, *40*(1), 1–63. https://doi.org/10.1080/03066150.2012.719224

Patel, R. (2013). The Long Green Revolution. *Journal Of Peasant Studies*, 40(1), 1–63. Https://Doi.Org/10.1080/03066150.2012.719224

Paul, H., Ernsting, A., Semino, S., Gura, S., & Lorch, A. (2009, September). *Agriculture and climate change: Real problems, false solutions*. Econexus, Biofuelwatch, Grupo de Reflexion Rural, NOAH - Friends of the Earth Denmark. https://powerbase.info/images/d/d5/Agriculture_climate_change_September_2009.pdf

Ponisio, L. C., M'Gonigle, L. K., Mace, K. C., Palomino, J., de Valpine, P., & Kremen, C. (2014). Diversification practices reduce organic to conventional yield gap. *Proceedings of the Royal Society B: Biological Sciences, 282*(1799), 20141396. https://doi.org/10.1098/rspb.2014.1396

Penvern, S., Lamine, C., Derbez, F., Ollivier, G., Renier, L., Roche, R., & Tuscano, M. (2023). Addressing The Diversity Of Visions Of Ecologization In Research And In Support To Agroecological Transitions. *Agroecology And Sustainable Food Systems,* 47(9), 1403–1427. Https://Doi.Org/10.1080/21683565.2023.2246395

Pimbert, M. (2015). Agroecology As An Alternative Vision To Conventional Development And Climate-Smart Agriculture. *Development*, 58(2–3), 286–298. Https://Doi.Org/10.1057/S41301-016-0013-5

Ramdas, S. R., & Pimbert, M. P. (2024). A Cog In The Capitalist Wheel: Co-Opting Agroecology In South India. *The Journal Of Peasant Studies*, 1–23. Https://Doi.Org/10.1080/03066150.2024.2310739

Ribeiro, J. D. M. (2023). Peasantry And Rural Resistance In The 21st Century Türkiye: The Case Of Çiftçi-Sen [Doctoral Dissertation]. Middle East Technical University.

Rivera-Ferre, M. G. (2018). The Resignification Process Of Agroecology: Competing Narratives From Governments, Civil Society And Intergovernmental Organizations. *Agroecology And Sustainable Food Systems,* 42(6), 666–685. Https://Doi.Org/10.1080/21683565.2018.1437498

Rivera-Núñez, T., Fargher, L., & Nigh, R. (2020). Toward An Historical Agroecology: An Academic Approach In Which Time And Space Matter.

Rosset, P. (2003). Global Rallying Cry Of Farmer Movements. Backgrounder (Washington, D.C.), 9(4).

Rosset, P. M., & Altieri, M. A. (2017). *Agroecology: Science And Politics.* Practical Action Publishing. Https://Doi.Org/10.3362/9781780449944

Rosset, P. M., & Martínez-Torres, M. E. (2012). Rural Social Movements And Agroecology: Context, Theory, And Process. *Ecology And Society,* 17(3), Art17. Https://Doi.Org/10.5751/ES-05000-170317

Rosset, P.M. and Martínez-Torres, M.E. (2014), "Food Sovereignty and Agroecology in the Convergence of Rural Social Movements", Alternative Agrifood Movements: Patterns of Convergence and Divergence (*Research in Rural Sociology and Development,* Vol. 21), Emerald Group Publishing Limited, Leeds, pp. 137-157. https://doi.org/10.1108/S1057-192220140000021001

Silici, L. (2014). Agroecology: What It Is And What It Has To Offer. IIED Issue Paper. IIED, London.

Snipstal, B. (2015). FS - Repeasantization, Agroecology And The Tactics Of Food Sovereignty. Canadian Food Studies / *La Revue Canadienne Des Études Sur L'alimentation*, 2(2), 164–173. Https://Doi.Org/10.15353/Cfs-Rcea.V2i2.132

Thompson, M. S., Cochrane, A., & Hopma, J. (2020). Democratising Food: The Case For A Deliberative Approach. *Review Of International Studies*, 46(4), 435–455. Https://Doi.Org/10.1017/S0260210520000017

Tilzey, M. (2019). Authoritarian Populism And Neo-Extractivism In Bolivia And Ecuador: The Unresolved Agrarian Question And The Prospects For Food Sovereignty As Counter-Hegemony. *The Journal Of Peasant Studies,* 46(3), 626–652. Https://Doi.Org/10.1080/03066150.2019.1584191

Tilzey, M. (2020). From Neoliberalism To National Developmentalism? Contested Agrarian Imaginaries Of A Postneoliberal Future For Food And Farming. *Journal Of Agrarian Change*, 21(1), 180–201. Https://Doi.Org/10.1111/Joac.12379

Turhan, E. (2016). Value-Based Adaptation To Climate Change And Divergent Developmentalisms In Turkish Agriculture. *Ecological Economics*, 121, 140–148. Doi:10.1016/J.Ecolecon.2015.11.021

Van Den Berg, L., Behagel, J. H., Verschoor, G., Petersen, P., & Gomes Da Silva, M. (2022). Between Institutional Reform And Building Popular Movements: The Political Articulation Of Agroecology In Brazil. *Journal Of Rural Studies*, 89, 140–148. Https://Doi.Org/10.1016/J.Jrurstud.2021.11.016

Via Campesina. (N.D.). International Peasants' Voice. Via Campesina. Retrieved August 5, 2023, From Https://Viacampesina.Org/En/International-Peasants-Voice/

La Via Campesina. (N.D.). Agroecology: A Way Of Life And A Struggle Against Capitalism. Via Campesina. Retrieved August 5, 2023, From Https://Viacampesina.Org/En/Agroecology-Way-Life-Struggle-Resistance-Capitalism/

Via Campesina. (N.D.). What Is Food Sovereignty? Via Campesina. Retrieved August 5, 2023, From Https://Viacampesina.Org/En/What-Is-Food-Sovereignty/

Via Campesina. (2013). From Maputo To Jakarta: 5 Years Of Agroecology In La Via Campesina. LVC.

Via Campesina. (2015, February 27). Declaration Of The International Forum For Agroecology. Via Campesina. Https://Viacampesina.Org/En/Declaration-Of-The-International-Forum-Foragroecology/

Wezel, A., Bellon, S., Doré, T., Francis, C., Vallod, D., & David, C. (2009). Agroecology As A Science, A Movement And A Practice. A Review. *Agronomy For Sustainable Development,* 29(4), 503–515. Https://Doi.Org/10.1051/Agro/2009004

Wezel, A., & Soldat, V. (2009). A Quantitative And Qualitative Historical Analysis Of The Scientific Discipline Of Agroecology. *International Journal Of Agricultural Sustainability.*

Woodhouse, P. (2010). Beyond Industrial Agriculture? Some Questions about Farm Size, Productivity and Sustainability. *Journal of Agrarian Change*, 10(3), 437–453. https://doi.org/10.1111/j.1471-0366.2010.00278.x

Yıldız, M. Y. (2021). Agroekoloji Meselesinde Gıda Egemenliği: Bernstein ve Mcmichael Tartışması. In T Özkaya, M. Y. Yıldız, F. Özden, & U. Kocagöz (Eds.), Agroekoloji: Başka Bir Tarım Mümkün (pp. 224–233). essay, Metis Publishing.

Yong, A. G., & Pearce, S. (2013). A Beginner's Guide To Factor Analysis: Focusing On Exploratory Factor Analysis. Tutorials In Quantitative Methods For Psychology, 9(2), 79–94. Https://Doi.Org/10.20982/Tqmp.09.2.P079

APPENDIX A: Exploratory Factor Analysis

Table A.1. Tests of Normality

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
1. Agroecology can be adopted on small-scale farms.	.175	51	<.001	.882	51	<.001
2. Agroecology uses short and direct supply chains.	.258	51	<.001	.762	51	<.001
3. Agroecology is a political movement against the exploitation of humans and nature.	.357	51	<.001	.650	51	<.001
4. The main goal of agroecology is to establish local and just food systems.	.382	51	<.001	.624	51	<.001
5. A top-down command chain is compatible with agroecological principles.	.346	51	<.001	.715	51	<.001
6. Financial support provided by the state for agroecological production harms farmers' autonomy.	.214	51	<.001	.863	51	<.001
7. Agroecological farmers should organize under cooperatives and unions.	.285	51	<.001	.775	51	<.001
8. Agroecology relies on the ancestorial local knowledge.	.276	51	<.001	.871	51	<.001
9. Farmers' adopting agroecology individually is not enough; agroecology requires social organization and collective movement.	.425	51	<.001	.512	51	<.001
10. Industrial agriculture has devalued women's knowledge and skills in agriculture and nature.	.288	51	<.001	.753	51	<.001
11. Agroecological food products primarily target consumers in high-income groups.	.263	51	<.001	.826	51	<.001
12. In agroecological farming, the use of high technology and machinery is deprioritized.	.252	51	<.001	.888	51	<.001
13. Agroecology returns the importance of the knowledge and skills on nature and agriculture possessed by women.	.281	51	<.001	.746	51	<.001
14. The income of farmers and wealth of the region should be increased by exporting agroecologically produced goods.	.170	51	<.001	.890	51	<.001

15. Agroecology is one of the technical solutions that can be used to reduce problems in industrial agriculture.	.257	51	<.001	.849	51	<.001
16. Agroecology should be promoted by international institutions, agribusinesses, and states.	.260	51	<.001	.828	51	<.001
17. Agroecology opposes market-oriented production and policies.	.245	51	<.001	.810	51	<.001
18. Agroecology can be implemented on large or medium-scale farms.	.208	51	<.001	.874	51	<.001
19. Agroecology argues to minimize the use of external inputs (hybrid seeds, agrochemicals, synthetic fertilizers, etc.) as much as possible.	.383	51	<.001	.626	51	<.001
20. Agroecology and organic farming are the same thing.	.244	51	<.001	.834	51	<.001
21. Farmers can apply agroecology on part of their land to earn additional income; it is not necessary to implement it on the entire farm.	.243	51	<.001	.839	51	<.001
22. Farmers learn from each other and learn by seeing and experiencing.	.263	51	<.001	.777	51	<.001
23. Agroecology aims to build and foster solidarity between farmers and consumers.	.418	51	<.001	.632	51	<.001
24. The state should decide on agroecological practices and projects to be implemented.	.211	51	<.001	.852	51	<.001
25. Farmers do not know the scientific basis of agriculture; they need to be educated by agricultural engineers.	.179	51	<.001	.876	51	<.001
26. Producers can transition to agroecology on their own lands; it is an individual endeavor.	.199	51	<.001	.901	51	<.001
27. Agroecologically produced goods and foods should be more expensive compared to conventional products.	.196	51	<.001	.876	51	<.001
28. Decisions in agroecology should be made through participatory processes.	.397	51	<.001	.669	51	<.001
29. Agroecological producers should organize in and through local and alternative food networks.	.441	51	<.001	.576	51	<.001
30. The state should support agroecology with subsidy and support programs for farmers.	.383	51	<.001	.600	51	<.001
31. Agroecology aims to improve the agricultural system with gradual reforms, it does not call for a holistic transformation.	.146	51	.008	.893	51	<.001
32. Agroecology can be carried out by agribusinesses.	.174	51	<.001	.876	51	<.001
33. Monoculture (single crop farming) can be practiced in agroecological farming.	.286	51	<.001	.754	51	<.001
34. Agroecology is closely related to farmers' struggle for food sovereignty.	.423	51	<.001	.591	51	<.001

35. The main goal in agroecology is to increase the economic gains of producers.	.220	51	<.001	.904	51	<.001
36. Agroecology aims for social justice in the agricultural sector.	.365	51	<.001	.667	51	<.001
37. Agroecology should be spread by peasants and farmers.	.313	51	<.001	.742	51	<.001
38. Local governments should support agroecological farmers through public procurement.	.335	51	<.001	.679	51	<.001
a. Lilliefors Significance Correction						

Table A.2. KMO and Bartlett's Tests

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.457
Bartlett's Test of Sphericity	Approx. Chi-Square	1228.967
	df	703
	Sig.	<.001

Table A.3. Communalities

Communalities		
	Initial	Extraction
1. Agroecology can be adopted on small-scale farms.	1.000	.833
2. Agroecology uses short and direct supply chains.	1.000	.758
3. Agroecology is a political movement against the exploitation of humans and nature.	1.000	.778
4. The main goal of agroecology is to establish local and just food systems.	1.000	.782
5. A top-down command chain is compatible with agroecological principles.	1.000	.745
6. Financial support provided by the state for agroecological production harms farmers' autonomy.	1.000	.644
7. Agroecological farmers should organize under cooperatives and unions.	1.000	.671
8. Agroecology relies on the ancestorial local knowledge.	1.000	.873
9. Farmers' adopting agroecology individually is not enough; agroecology requires social organization and collective movement.	1.000	.874
10. Industrial agriculture has devalued women's knowledge and skills in agriculture and nature.	1.000	.688
11. Agroecological food products primarily target consumers in high-income groups.	1.000	.831
12. In agroecological farming, the use of high technology and machinery is deprioritized.	1.000	.569
13. Agroecology returns the importance of the knowledge and skills on nature and agriculture possessed by women.	1.000	.802
14. The income of farmers and wealth of the region should be increased by exporting agroecologically produced goods.	1.000	.803
15. Agroecology is one of the technical solutions that can be used to reduce problems in industrial agriculture.	1.000	.696
16. Agroecology should be promoted by international institutions, agribusinesses, and states.	1.000	.767
17. Agroecology opposes market-oriented production and policies.	1.000	.792
18. Agroecology can be implemented on large or medium-scale farms.	1.000	.729

19. Agroecology argues to minimize the use of external inputs (hybrid seeds, agrochemicals, synthetic fertilizers, etc.) as much as possible.	1.000	.841
20. Agroecology and organic farming are the same thing.	1.000	.836
21. Farmers can apply agroecology on part of their land to earn additional income; it is not necessary to implement it on the entire farm.	1.000	.659
22. Farmers learn from each other and learn by seeing and experiencing.	1.000	.719
23. Agroecology aims to build and foster solidarity between farmers and consumers.	1.000	.752
24. The state should decide on agroecological practices and projects to be implemented.	1.000	.770
25. Farmers do not know the scientific basis of agriculture; they need to be educated by agricultural engineers.	1.000	.657
26. Producers can transition to agroecology on their own lands; it is an individual endeavor.	1.000	.757
27. Agroecologically produced goods and foods should be more expensive compared to conventional products.	1.000	.728
28. Decisions in agroecology should be made through participatory processes.	1.000	.758
29. Agroecological producers should organize in and through local and alternative food networks.	1.000	.714
30. The state should support agroecology with subsidy and support programs for farmers.	1.000	.762
31. Agroecology aims to improve the agricultural system with gradual reforms, it does not call for a holistic transformation.	1.000	.655
32. Agroecology can be carried out by agribusinesses.	1.000	.676
33. Monoculture (single crop farming) can be practiced in agroecological farming.	1.000	.705
34. Agroecology is closely related to farmers' struggle for food sovereignty.	1.000	.796
35. The main goal in agroecology is to increase the economic gains of producers.	1.000	.675
36. Agroecology aims for social justice in the agricultural sector.	1.000	.773
37. Agroecology should be spread by peasants and farmers.	1.000	.814
38. Local governments should support agroecological farmers through public procurement.	1.000	.682
Extraction Method: Principal Component Analysis.		

KMO value is less than 0.6 and even though Bartlett test is positive ($p<0.05$) the data is not suitable for dimension reduction yet. We should reduce the number of elements, for examples the ones with communalities lower than 0.3. However, we do not have any elements with communalities value less than 0.3. Then we decide to reduce elements based on their verbal and meaning similarities. 8 items reduced from the question lists to improve the KMO test results, which accomplished successfully. The list of reduced items is presented below.

Table A.4. List of Removed Items

Statement/ Question Number	Statement	Category
1	Agroecology can be adopted on small-scale farms.	Operational Principles and Characteristics of Agricultural Practices
7	Agroecological farmers should organize under cooperatives and unions.	Methodological and Organizational Principles
12	In agroecological farming, the use of high technology and machinery is deprioritized.	Operational Principles and Characteristics of Agricultural Practices
13	Agroecology returns the importance of the knowledge and skills on nature and agriculture possessed by women.	Gender Aspect
28	Decisions in agroecology should be made through participatory processes.	Methodological and Organizational Principles
29	Agroecological producers should organize in and through local and alternative food networks.	Methodological and Organizational Principles
37	Agroecology should be spread by peasants and farmers.	Protagonist of Agroecology

Table A. 5. KMO and Bartlett's Test After Item Reduction

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.592
Bartlett's Test of Sphericity	Approx. Chi-Square	838.853
	df	465
	Sig.	<.001

Table A.6. Scree Plot

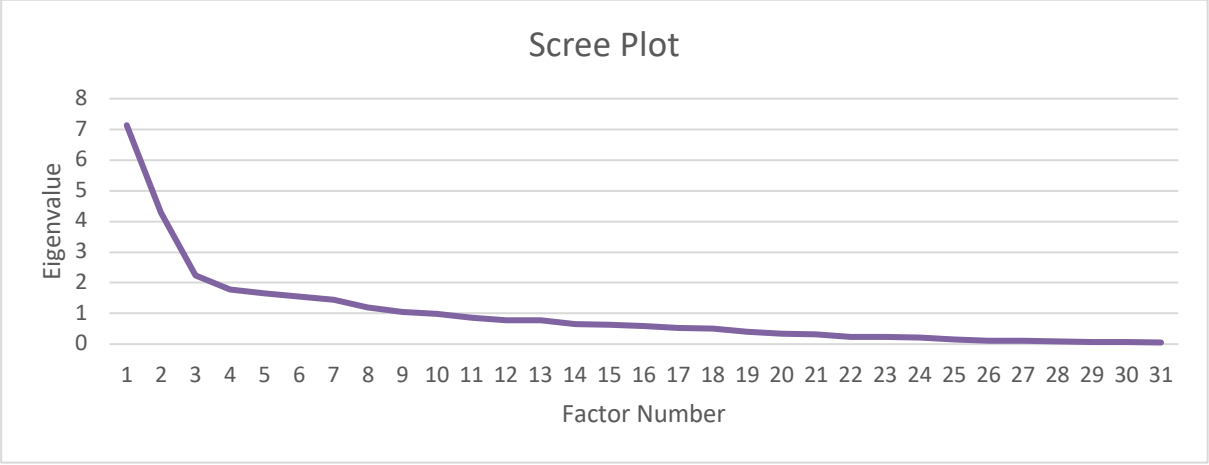


Table A.7. Total Variance Explained

Total Variance Explained						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.135	23.015	23.015	7.135	23.015	23.015
2	4.277	13.796	36.811	4.277	13.796	36.811
3	2.235	7.209	44.020	2.235	7.209	44.020
4	1.776	5.728	49.748	1.776	5.728	49.748
5	1.658	5.348	55.096	1.658	5.348	55.096
6	1.545	4.984	60.080	1.545	4.984	60.080
7	1.449	4.673	64.753	1.449	4.673	64.753
8	1.187	3.829	68.582	1.187	3.829	68.582
9	1.056	3.407	71.989	1.056	3.407	71.989
Extraction Method: Principal Component Analysis.						

APPENDIX B: Survey Questions

Module 1

In this section, you will be presented with 12 statements expressing personal opinions, and you will be asked to indicate the extent to which you agree with these statements.

1) Completely Disagree
2) Somewhat Disagree
3) Neither Agree Nor Disagree
4) Somewhat Agree
5) Completely Agree

1. I am deeply concerned by climate change, the deterioration of natural resources, and the loss of biodiversity.

2. I believe agricultural production is not possible without the use of chemical inputs such as synthetic fertilizers and agricultural chemicals.

3. I believe that small-scale farmers who use traditional farming methods cause less harm to nature.

4. I believe that ecological and organic farming should be promoted.

5. Using hybrid seeds developed and sold by companies is necessary to produce enough food.

6. The priority of agricultural policies should be to increase exports.

7. The government should implement policies to protect local production and small-scale farmers.

8. The relationship between producers and consumers should be more direct (through producer markets, cooperative sales points, etc.).

9. I believe that intermediaries are necessary between producers and consumers.

10. I believe that industrial agriculture based on monoculture harms nature.

11. I believe that there are deep power inequalities in the agri-food system (for example, small producers and agricultural workers being disadvantaged compared to large corporations).

12. I believe that a comprehensive transformation is needed to address the deep power inequalities in the agri-food system.

In this section, you will be asked 9 questions with either open-ended or multiple-choice answers.

---

13. Who is responsible for ensuring the sustainability in the agricultural sector?
    a. State
    b. Private Sector
    c. Farmers
    d. Other

14. What do you think is the biggest problem in the agricultural sector for farmers?_____(open-ended)

15. Have you heard of the concept of Food Sovereignty before?
    a. Yes (go to 16th question)
    b. No (go to 17th question)

16. What does food sovereignty mean to you?_____(open-ended)

17. Have you heard of the concept of the Agroecology before?
    a. Yes (go to 18th question)
    b. No (go to 21st question)

18. What does agroecology mean to you? ?_____ (open-ended)

19. How do you think agroecology benefits Türkiye (in terms of nature, farmers, consumers, the economy, etc.) ?_____ (open-ended)

20. Do you think food sovereignty and agroecology are related
    a. Yes
    b. No

21. What do you think agroecology could be?_____ (open-ended)

Module 2

In this section, 38 statements defining the concept of agroecology are presented. We kindly ask you to indicate how correct or false you find these statements.

---

1) Completely False
2) Somewhat False
3) Neither Correct Nor False
4) Somewhat Correct
5) Completely Correct

---

1. Agroecology can be adopted on small-scale farms.
2. Agroecology uses short and direct supply chains.
3. Agroecology is a political movement against the exploitation of humans and nature.
4. The main goal of agroecology is to establish local and just food systems.
5. A top-down command chain is compatible with agroecological principles.
6. Financial support provided by the state for agroecological production harms farmers' autonomy.
7. Agroecological farmers should organize under cooperatives and unions.
8. Agroecology relies on the ancestorial local knowledge.
9. Farmers' adopting agroecology individually is not enough; agroecology requires social organization and collective movement.
10. Industrial agriculture has devalued women's knowledge and skills in agriculture and nature.
11. Agroecological food products primarily target consumers in high-income groups.
12. In agroecological farming, the use of high technology and machinery is deprioritized.
13. Agroecology returns the importance of the knowledge and skills on nature and agriculture possessed by women.
14. The income of farmers and wealth of the region should be increased by exporting agroecologically produced goods.

15. Agroecology is one of the technical solutions that can be used to reduce problems in industrial agriculture.
16. Agroecology should be promoted by international institutions, agribusinesses, and states.
17. Agroecology opposes market-oriented production and policies.
18. Agroecology can be implemented on large or medium-scale farms.
19. Agroecology argues to minimize the use of external inputs (hybrid seeds, agrochemicals, synthetic fertilizers, etc.) as much as possible.
20. Agroecology and organic farming are the same thing.
21. Farmers can apply agroecology on part of their land to earn additional income; it is not necessary to implement it on the entire farm.
22. Farmers learn from each other and learn by seeing and experiencing.
23. Agroecology aims to build and foster solidarity between farmers and consumers.
24. The state should decide on agroecological practices and projects to be implemented.
25. Farmers do not know the scientific basis of agriculture; they need to be educated by agricultural engineers.
26. Producers can transition to agroecology on their own lands; it is an individual endeavor.
27. Agroecologically produced goods and foods should be more expensive compared to conventional products.
28. Decisions in agroecology should be made through participatory processes.
29. Agroecological producers should organize in and through local and alternative food networks.
30. The state should support agroecology with subsidy and support programs for farmers.
31. Agroecology aims to improve the agricultural system with gradual reforms, it does not call for a holistic transformation.
32. Agroecology can be carried out by agribusinesses.
33. Monoculture (single crop farming) can be practiced in agroecological farming.
34. Agroecology is closely related to farmers' struggle for food sovereignty.
35. The main goal in agroecology is to increase the economic gains of producers.
36. Agroecology aims for social justice in the agricultural sector.
37. Agroecology should be spread by peasants and farmers.
38. Local governments should support agroecological farmers through public procurement.

Module 3: Demographics

1. What is your birth year?
2. What is the highest level of education you have completed? *
    a) Primary or Secondary School
    b) High School

c) Undergraduate Degree
d) Master's Degree
e) Doctorate

3. What is your occupation?
4. What is your gender?
    a. Women
    b. Men
    c. Other/Prefer Not to Specify
5. If applicable, can you share the name of the institution where you are currently employed?
6. Which of the following best describes you?
    a. Farmer, Producer
    b. Civil Society Member/Worker/Volunteer
    c. Public Sector Employee/Representative
    d. Local Government Employee/Representative
    e. Food Network Volunteer/Worker
    f. Other_____

APPENDIX C: Interview Questions

Agroecology Research Semi-Structured In-depth Interview Questions

Local Government

1. What do you think are the fundamental principles of agroecology?
2. What potential do you think agroecology has for Türkiye? What types of barriers does it face?
3. Do you think the Ministry is aware of this potential?
4. In your opinion, what was more influential in bringing agroecology to the Ministry's agenda: international institutions or domestic demands and dynamics?
5. Does the Ministry envision a transformation in the agricultural-food system in favor of small producers and ecological production?
6. Does the Ministry view agroecology as a strong opportunity to increase social, ecological, and economic sustainability?
7. At what scale does the Ministry plan to promote agroecology?
8. At what scale do you think agroecology can be implemented in Türkiye?
9. Are you aware of the support and programs provided by central governments for agroecology in other countries?
10. Is there a country that you think Türkiye is closely aligned with regarding agroecology support?

Local Governments

1. What potential do you think agroecology has for Türkiye?
2. Do you think the institution you are working for is aware of this potential?
3. What is the motivation of your institution in supporting agroecology?
4. What types of policies and projects does your institution use to support agroecology?
5. Can you briefly explain why your institution chose these methods?
6. Do you think a fundamental change in the agricultural-food system is an urgent need?
7. Do you think your institution is striving to create a transformation in the agricultural-food system?
8. If your answer is yes, what steps are being taken towards this transformation? Why?

9. Are the project designs, decision-making, and implementation processes regarding this direction conducted in participatory and democratic ways?
10. How do you evaluate the central government's projects and policies towards agroecology?
11. Is there anything else you would like to add?

Civil Society

---

1. What potential do you think agroecology has for Türkiye?
2. Do you think the institution you are working for is aware of this potential?
3. Do you think the institution you are working for is conducting sufficient work on agroecology?
4. What are the priorities and principles of your institution's projects related to agroecology?
5. Does the agroecology promoted by your institution differ from that encouraged by local and central governments in their programs and projects?
6. Do you think the incentives provided by local and central governments for agroecology are sufficient?

Farmers

---

1. Do you practice agroecological production?
2. What does this concept mean to you?
3. Do you come together with other producers under the umbrella of cooperatives or producer unions?
4. Is food sovereignty an important concept for you?
5. How do you think it is connected to agroecology?
6. Are you aware of the support local governments provide for agroecology (or ecological production)? If yes, do you think it is sufficient?
7. Why and how did you start ecological production? Have you noticed any changes in your income or the number of living organisms in your garden?
8. Do you observe an increase in the number of farmers/villagers/producers practicing agroecological production?
9. Among those practicing agroecological production, do you observe any changes in social bonds?
10. Do you think agroecology is misunderstood or misapplied?

APPENDIX D: Survey Questions in Turkish

Modül 1

Bu bölümde, kişisel görüşleri ifade eden 12 ifade sunulacak ve bu ifadelere ne ölçüde katıldığınızı belirtmeniz istenecektir..

1) Hiç Katılmıyorum
2) Biraz Katılmıyorum
3) Ne Katılıyorum Ne Katılmıyorum
4) Biraz Katılıyorum
5) Son Derece Katılıyorum

1. İklim değişikliği, doğal kaynakların azalması ve biyoçeşitlilik kaybı gibi çevre sorunları beni çok endişelendiriyor.

2. Kimyasal girdiler (sentetik gübre, tarım kimyasalı gibi) kullanmadan tarımsal üretim yapılmasının mümkün olmadığını düşünüyorum.

3. Geleneksel tarım yöntemleri ile üretim yapan küçük ölçekli çiftçilerin doğaya daha az zarar verdiğini düşünüyorum.

4. Ekolojik ve organik tarımın yaygınlaştırılması gerektiğini düşünüyorum.

5. Şirketlerce geliştirilen ve satılan hibrit tohumları kullanmak yeterince gıda üretebilmek için gereklidir.

6. Tarım politikalarının önceliğinin ihracatı artırmak olması gerektiğini düşünüyorum.

7. Devletin yerel üretimi ve küçük üreticiyi koruyacak politikalar uygulaması gerektiğini düşünüyorum

8. Üretici ve tüketici arasındaki ilişkinin daha doğrudan olması gerektiğini düşünüyorum (üretici pazarları, kooperatif satış noktaları vb. ile).

9. Üretici ile tüketici arasında aracıların olmasının gerekli olduğunu düşünüyorum.

10. Monokültüre (tek tip ürün yetiştirmeye) dayalı endüstriyel tarımın doğaya zarar verdiğini düşünüyorum.

11. Tarım-gıda sisteminde derin güç eşitsizliklerinin olduğunu düşünüyorum (örneğin büyük şirketler karşısında küçük üreticilerin, tarım işçilerinin dezavantajlı olması gibi).

12. Tarım-gıda sisteminde derin güç eşitsizliklerini giderecek bütüncül bir dönüşüme ihtiyaç olduğunu düşünüyorum.

Bu bölümde açık uçlu ve çoktan seçmeli cevapları olan 9 soru sorulacaktır.

---

13. Sizce tarım sektöründe sürdürülebilirliğin sağlanmasında en önemli sorumluluk kimdedir?

a. Devlet
b. Özel Sektör
c. Çiftçiler
d. Diğer

14. Sizce, Türkiye tarımı ve çiftçiler için en önemli sorun nedir? _____(açık-uçlu)

15. Gıda egemenliği kavramını daha önce duymuş muydunuz?

a. Evet (16. Soruya geçiniz)
b. Hayır (17. Soruya geçiniz)

16. Gıda egemenliği sizin için ne ifade etmektedir?

_____(açık-uçlu)

17. Agroekoloji kavramını daha önce duymuş muydunuz?

a. Evet (18. Soruya geçiniz)
b. Hayır (3. Modüle geçiniz)

18. Agroekoloji kavramı sizin için ne ifade etmektedir? _____(açık-uçlu)

19. Sizce, agroekoloji ve gıda egemenliği kavramları birbirleri ile alakalı mıdır?
    a. Evet
    b. Hayır

20. Sizce agroekoloji Türkiye'ye (doğaya, çiftçilere, tüketicilere ve ekonomiye vb.) nasıl bir fayda sağlar? _____(açık-uçlu)

21. Agroekoloji sizce ne olabilir? _____(açık-uçlu)

Modül 2

Bu bölümde size agroekolojiye dair 38 tanım cümlesi sunulacaktır. Her bir tanım cümlesinin ne oranda doğru yada yanlış olduğunu belirtmeniz istenecektir.

---

1) Tamamen Yanlış
2) Kısmen Yanlış
3) Ne Doğru Ne Yamlış
4) Kısmen Doğru
5) Tamamen Doğru

---

1. Agroekoloji küçük ölçekli arazilerde yapılır.

2. Agroekoloji kısa ve aracısız tedarik zincirlerini kullanmalıdır.

3. Agroekoloji, insanın ve doğanın sömürüsüne karşı çıkan politik bir harekettir.

4. Agroekolojide temel amaç yerel ve adil gıda sistemleri kurmaktır.

5. Yukarıdan aşağıya doğru işleyen bir emir-komuta zinciri agroekolojinin prensipleriyle uyumludur.

6. Agroekolojik üretime devlet tarafından verilen parasal destekler, çiftçilerin bağımsızlığına zarar verir.

7. Agroekolojiyi benimseyen çiftçiler; kooperatifler gibi üst çatılar altında örgütlenmelidir.

8. Agroekoloji, çiftçilerin nesiller boyu paylaştığı yerel bilgiyle uygulanır.

9. Çiftçilerin bireysel olarak agroekolojiyi benimsemesi yeterli değildir, agroekoloji bir araya gelmeyi ve sosyal olarak örgütlenmeyi gerektirir.

10. Endüstriyel tarım, kadınların tarım ve doğa bilgisini ve becerilerini değersizleştirmiştir.

11. Agroekolojik gıda ürünleri yalnızca yüksek gelir gruplarındaki tüketicilere hitap etmektedir.

12. Agroekolojik tarımda yüksek teknoloji ve makine kullanımı geri plandadır

13. Agroekolojik üretim kadınların biriktirdiği bilgi ve becerilere eski önemini geri verir.

14. Agroekolojik gıda ürünleri ihraç edilerek çiftçinin ve üretilen bölgenin kazancı arttırılmalıdır.

15. Agroekoloji endüstriyel gıda üretimindeki problemleri azaltmak için kullanılabilecek teknik çözümlerden biridir.

16. Agroekoloji uluslararası kurumlar, şirketler ve devletler öncülüğünde yaygınlaştırılmalıdır.

17. Agroekoloji piyasa odaklı üretime ve politikalara karşı çıkar.

18. Agroekoloji büyük ya da orta ölçekli çiftliklerde hayata geçirilebilir.

19. Agroekolojik tarımda dışarıdan girdi (hibrit tohum, tarım kimyasalı ve sentetik gübre vb) olabildiğince kullanılmaz.

20. Agroekoloji ile organik tarım aynı kavramı ifade eder.

21. Çiftçiler, agroekolojik tarımı arazilerinin bir kısmında uygulayıp ek gelir elde edebilirler, tümünde uygulamaları şart değildir.

22. Çiftçiler birbirlerinden ve görerek öğrenir.

23. Agroekoloji; çiftçiler ve tüketiciler arasında dayanışmayı hedefler.

24. Agroekoloji uygulamalarına ve hayata geçirilecek projelere devlet karar vermelidir.

25. Çiftçiler tarımın bilimsel yönlerini bilemezler, bu yüzden ziraat mühendisleri tarafından bilgilendirilmeleri gerekir.

26. Üreticiler kendi arazilerinde agroekolojiyi hayata geçirebilir, bu bireysel bir uğraştır.

27. Agroekolojik ürünlerin konvansiyonel ürünlere kıyasla pahalı olması gerekir.

28. Agroekolojide kararlar katılımcı süreçlerle alınmalıdır.

29. Yerel ve alternatif gıda ağları ile agroekolojik üreticiler bir araya gelerek örgütlenmelidir.

30. Devlet, agroekolojiyi çiftçilere vereceği teşviklerle desteklemelidir.

31. Agroekoloji tarım gıda sisteminin topyekûn dönüşümünü değil, tarım sisteminin ufak müdahalelerle düzenlenmesini hedefler.

32. Agroekoloji tarım-gıda şirketlerince yapılabilir.

33. Agroekolojik tarımda monokültür (tek tip ürün yetiştirme) yapılabilir.

34. Agroekoloji, çiftçilerin gıda egemenliği mücadelesi ile yakından ilişkilidir.

35. Agroekolojide temel amaç üreticilerin ekonomik kazancını arttırmaktır.

36. Agroekoloji tarım sektöründe sosyal adaleti amaçlar.

37. Agroekoloji köylüler ve çiftçilerce yaygınlaştırılmalıdır.

38. Yerel yönetimler, agroekolojik çiftçileri kamu alımları aracılığıyla desteklemelidir.

Modül 3: Demografya

---

1. Doğum yılınız nedir?

2. Tamamladığınız en yüksek öğrenim seviyesi nedir?
   a. İlk/Orta Okul
   b. Lise
   c. Lisans
   d. Master
   e. Doktora

3. Mesleğiniz nedir?_____

4. What is your gender?
   a. Women
   b. Men
   c. Other/Prefer Not to Specify

5. If applicable, can you share the name of the institution where you are currently employed? _____

6. Which of the following best describes you?
   a. Farmer, Producer
   b. Civil Society Member/Worker/Volunteer
   c. Public Sector Employee/Representative
   d. Local Government Employee/Representative
   e. Food Network Volunteer/Worker

f. Other_____

APPENDIX E: Interview Questions in Turkish

Agroekoloji Araştırması Yarı-Yapılandırılmış Derinlemesine Görüşme Soruları

Merkezi Yönetim

1. Sizce, agroekolojinin temel prensipleri nelerdir?
2. Agroekolojinin Türkiye'de nasıl bir potansiyeli olduğunu düşünüyorsunuz? Peki, sizce bu potansiyelin gerçekleşmesi önündeki bariyerler nelerdir??
3. Bakanlığın bu potansiyelin farkında olduğunu düşünüyor musunuz?
4. Sizce, agroekolojinin bakanlığın ajandasına girmesinde hangisi daha etkili olmuştur: yurtiçi talepler mi yoksa uluslararası kuruluşlar mı?
5. Sizce bakanlık tarım-gıda sisteminde bir küçük-ölçekli çiftçilerin lehine dönüşüm öngörüyor mu?
6. Bakanlık agroekolojiyi ekolojik, ekonomik ve sosyal sürdürülebilirlik konularında güçlü bir fırsat olarak görüyor mu?
7. Bakanlık agroekolojiyi hangi ölçekte yaygınlaştırmak istiyor?
8. Agroekoloji Türkiye'de hangi ölçekte yaygınlaştırılabilir?
9. Diğer ülkelerde merkezi yönetimler tarafından agroekolojinin yaygınlaştırılması için hazırlanan proje ve desteklerden haberdar mısınız?
10. Türkiye'nin agroekolojiye verdiği desteklere ve izlediği yola benzer yöntemler izleyen başka ülkeler var mı?

Yerel Yönetim

1. Agroekolojinin Türkiye için ne gibi bir potansiyele sahip olduğunu düşünüyorsunuz?
2. Çalıştığınız kurumun bu potansiyelin farkında olduğunu düşünüyor musunuz?
3. Kurumunuzun agroekolojiyi desteklemesindeki motivasyon nedir?
4. Kurumunuz agroekolojiyi desteklemek için hangi tür politika ve projeleri kullanıyor?
5. Kurumunuzun bu yöntemleri seçmesinin sebebini kısaca açıklayabilir misiniz?
6. Tarım-gıda sisteminde köklü bir değişimin acil bir ihtiyaç olduğunu düşünüyor musunuz?
7. Kurumunuzun tarım-gıda sisteminde bir dönüşüm yaratmaya çalıştığını düşünüyor musunuz?
8. Eğer cevabınız evetse, bu dönüşüme yönelik ne tür adımlar atılıyor? Neden?

9. Bu yöndeki proje tasarımları, karar alma ve uygulama süreçleri katılımcı ve demokratik yollarla mı yürütülüyor?
10. Merkezi hükümetin agroekolojiye yönelik projelerini ve politikalarını nasıl değerlendiriyorsunuz?
11. Eklemek istediğiniz başka bir şey var mı?

Sivil Toplum

1. Agroekolojinin Türkiye için ne gibi bir potansiyele sahip olduğunu düşünüyorsunuz?
2. Çalıştığınız kurumun bu potansiyelin farkında olduğunu düşünüyor musunuz?
3. Çalıştığınız kurumun agroekoloji üzerine yeterli çalışma yürüttüğünü düşünüyor musunuz?
4. Kurumunuzun agroekoloji ile ilgili projelerindeki öncelikler ve prensipler nelerdir?
5. Kurumunuzun teşvik ettiği agroekoloji, yerel ve merkezi hükümetlerin program ve projelerinde teşvik ettiği agroekolojiden farklılık gösteriyor mu?
6. Yerel ve merkezi hükümetlerin agroekolojiye sağladığı teşvikleri yeterli buluyor musunuz?

Çiftçiler

1. Agroekolojik üretim yapıyor musunuz?
2. Bu kavram sizin için ne ifade ediyor?
3. Kooperatifler veya üretici birlikleri çatısı altında diğer üreticilerle bir araya geliyor musunuz?
4. Gıda egemenliği sizin için önemli bir kavram mı?
5. Sizce bu kavram agroekoloji ile nasıl bağlantılı?
6. Yerel yönetimlerin agroekoloji (veya ekolojik üretim) için sağladığı desteklerden haberdar mısınız? Eğer evet, bu destekleri yeterli buluyor musunuz?
7. Ekolojik üretime neden ve nasıl başladınız? Gelirinizde ya da bahçenizdeki canlı türlerinin sayısında herhangi bir değişiklik fark ettiniz mi?
8. Agroekolojik üretim yapan çiftçi/köylü/üretici sayısında bir artış gözlemliyor musunuz?
9. Agroekolojik üretim yapanlar arasında sosyal bağlarda bir değişiklik gözlemliyor musunuz?
10. Sizce agroekoloji yanlış anlaşılan veya yanlış uygulanan bir kavram mı?