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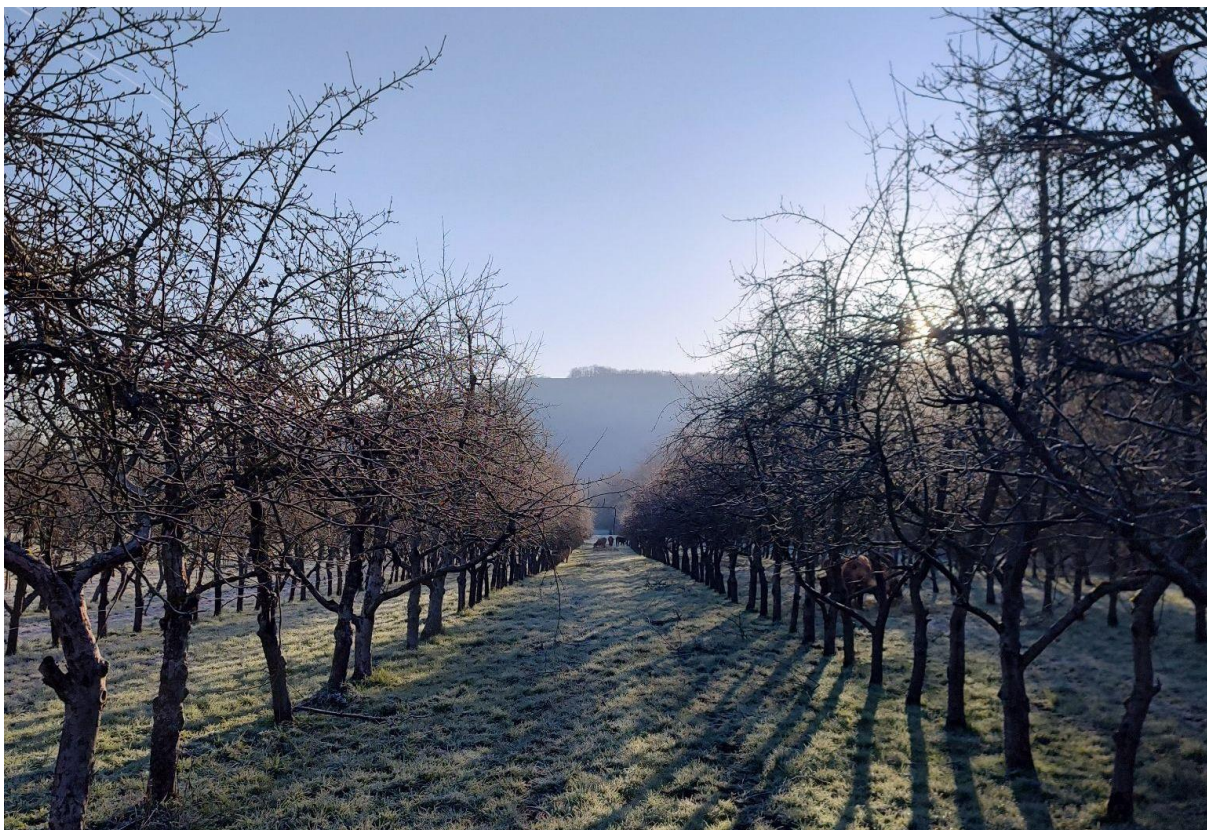


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Exploring farmers' perspectives on Community Supported Agroforestry: The role of CSA structures in promoting agroforestry implementation



Master thesis

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Abstract

This study explored the potential of Community Supported Agriculture (CSA) structures in promoting agroforestry practices in Flanders. While government subsidies, extension services, and research trials have been extensively studied for this purpose, CSA structures have received limited attention (Borremans, 2019; Cechin et al., 2021). Using an inductive approach inspired by Grounded Theory, the study was organized into two cycles. The first cycle involved semi-structured interviews with eleven CSA farmers and eleven CSA members to identify the characteristics that would enable this type of structure to promote effectively agroforestry practices in Flanders. In the second cycle, a conceptual organizational model based on the first cycle's findings served as a discussion platform during semi-structured interviews with nine conventional farmers. The aim was to explore the feasibility and replicability of the proposed approach within conventional farming. Content analysis was conducted on the interview data from each cycle, uncovering meaningful themes, categories, and subcategories.

The conceptual organizational model, namely the Community Supported Agroforestry (CSAF) model, which is based on a CSA structure and centered around diversified fruit trees in arable or pasture fields, did not find much adhesion among conventional farmers. The identified barriers include increased complexity and workload, additional responsibilities, productivity loss, and concerns about the lack of commitment and interest from members. Despite these limitations, discussions with conventional farmers have highlighted potential positive contributions, including the potential for cooperation in the management of trees, opportunities for shared capital investment, improving the image of farmers, and increasing consumer awareness of the reality of farming.

This comprehensive analysis provides valuable insights into the potential of CSA structures for promoting agroforestry practices in Flanders. The analysis of these results offers new avenues for reflection, particularly regarding the synergies that can be fostered between players from the alternative food networks and players from the traditional food system. Finally, it is worth questioning whether the

emphasis on performance should gradually give way to a culture of resilience as it could help farmers to engage with agroforestry and community initiatives.

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List of abbreviations

CSA: Community supported agriculture
 AFS: Agroforestry system
 EU: European Union
 CSAF: Community supported agroforestry
 CAP: European Common Agricultural Policy

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1. Introduction

Agroforestry or the deliberate growing of trees and shrubs in farmland in combination with crops or livestock, is a practice as old as agriculture itself (Nair et al., 2008). Evidence of the intentional establishment of agroforestry systems in Europe has been found to exist since 2,500 years B.C.E., and yet in less than a century, these practices have gone nearly to extinction in temperate Europe (Eichhorn et al., 2006). For centuries, trees were part of agricultural systems in temperate Europe as a source for essential resources like food, fodder and fuel, among others. Combining agricultural activities with silviculture (the growing and cultivation of trees) was also a central element in maintaining the overall productivity of the system by circulating key nutrients and providing ecosystem services resulting in short- and long-term returns (Eichhorn et al., 2006; Nair et al., 2008; Nerlich et al., 2013).

After the second world war, with the intensification of agriculture practices, traditional practices were progressively replaced by industrial methods. The main objective of industrial agriculture was to optimize labor by specializing farms in a few products and to intensify the production by relying on mechanization and the use of external inputs like chemical fertilizers or fossil fuels (Burgess and Morris, 2009; García de Jalón et al., 2018a; IPES-Food, 2016). In this context, trees and hedges were removed from pastures and arable land to consolidate small plots into bigger fields for easier management. Fruit and wood production were also intensified through the creation of monospecific orchards with dwarf trees (making it impossible for inter-cropping) and through the creation of permanent forest areas, excluding any association with agricultural activities (Eichhorn et al., 2006; Herzog, 1998; Lawson et al., 2005; Nerlich et al., 2013; van Zanten et al., 2013).

Since the end of the 20th century, and as the effects of industrial agriculture on climate and ecosystems become increasingly visible, agroforestry practices are gaining interest again from innovative farmers, academics, and governments due to the benefits that the practice can create (Herzog, 1998; Nair et al., 2008). Indeed, the implementation of agroforestry has been shown to be effective on many levels (promoting biodiversity, increasing pollination, sequestering carbon, reducing soil erosion, etc.) while delivering interesting socio-economic advantages at the same time (Borremans et al., 2016; Kay et al., 2019; Smith et al., 2012; Torralba et al., 2016).

Since 2007 the multiple benefits of agroforestry have led the European Union (EU) to include specific support measures for agroforestry in the European Common Agricultural Policy (CAP), which provides most of the regulatory measures and financial incentives for the EU agricultural sector. Initially, support for agroforestry systems (AFS) under the CAP 2007-2013 was limited to the second pillar, and it hindered the ability to obtain support from the first pillar (Lawson et al., 2019). However, in the subsequent CAP 2014-2020, support for AFS increased, and improvements were made to enhance eligibility for both pillars. Despite these advancements, some inconsistencies and a narrow definition of agroforestry made farmers cautious about utilizing the EU-provided support (Augère-Granier, 2020; Blanc et al., 2019; Rois Díaz, 2022; Rolo et al., 2020). In the new CAP 2021-2027, possibilities for agroforestry support have been further increased and its definition broadened. Furthermore, member states now have more freedom to implement and choose which measures they want to promote according to their own national and regional priorities (Donham et al., 2021).

Agroforestry was also mentioned among the solutions included in the “European Green deal”, which was launched in 2020 (Augère-Granier, 2020; Directorate-General for Communication, 2021; Donham et al., 2021). The European Green Deal is the initiative from the European Commission to tackle climate change and to make Europe the first climate neutral continent by 2050. (Directorate-General for Communication, 2021). Within this initiative, various strategies related to different themes have been designed. Agroforestry is recognized across a variety of these strategies as a beneficial practice in order to reach the Green Deal objectives. More specifically, agroforestry is mentioned in the “Biodiversity strategy for 2030” and in the “Farm to Fork strategy”. The first strategy aims to protect and restore ecosystems across Europe, the second aims to make food systems fair, healthy and environmentally friendly (Directorate-General for Environment, 2023a; Directorate-General for Health and Food Safety, 2023). In the “Biodiversity strategy for 2030”, there is also a specific focus on forestry with the “EU Forest strategy for 2030” where agroforestry is referenced multiple times as part of the solution (Directorate-General for Environment, 2023b; Donham et al., 2021).

While no specific numerical targets have been presented by the EU regarding AFS, a target of three billion additional trees planted by 2030 has been set by the European commission in 2020 (Directorate-General for Environment, 2020). This includes trees in forested areas, within agricultural land and urban areas as well (European Environment Agency, 2023). With this goal in mind, the European Agroforestry Federation (EURAF) estimated that there was a potential for 13 million additional hectares (equivalent to 3.13 billion trees) of new AFS to be planted by 2030. This is a conservative estimate as EURAF only considered the most environmentally degraded agricultural land across Europe for this estimate, thereby highlighting the importance of AFS in reaching the 3 billion tree planting target (European Agroforestry Federation, 2020; Kay et al., 2019). Currently, there are around 15.4 million hectares of what can be considered as agroforestry land in Europe (den Herder et al., 2017; Mosquera-Losada et al., 2016). The majority of hectares are livestock agroforestry systems (15.1 million hectares), while arable AFS cover

358,000 hectares. Overall, agroforestry represents 8.8% of the utilized agricultural area in the EU (Augère-Granier, 2020; den Herder et al., 2017).

Despite the growing interest and support for agroforestry practices, many constraints still prevent European farmers from adopting agroforestry practices. Thus, the adoption of new AFS remains limited (Augère-Granier, 2020; Borremans et al., 2016; Hernández-Morcillo et al., 2018; Lawson et al., 2019). Among the constraints faced by farmers, many share the perception that agroforestry practices are not economically viable (Borremans et al., 2016; Hernández-Morcillo et al., 2018; Lojka et al., 2022; Rois-Díaz et al., 2018; Rolo et al., 2020). One reason for this is the high implementation costs associated with design, installation and careful maintenance during the first years (Eichhorn et al., 2006; Rois Díaz, 2022; Sollen-Norrin et al., 2020). They also fear that the introduction of trees in agricultural fields will reduce the available agricultural surface and negatively affect the yield of their main production area by increasing competition for light, nutrients and water (Béral et al., 2020; Ehret et al., 2015; Moreau et al., 2020). In addition, the increased number of variables to be taken into account makes AFS management more complex compared to conventional farming systems and generates additional labour, including tasks that are difficult to mechanize (Graves et al., 2017; Hernández-Morcillo et al., 2018; Lojka et al., 2022; Rois Díaz, 2022; Rolo et al., 2020). The difficult economic valorization of agroforestry products due to the lack of adapted markets also contributes to the complex management of AFS (García de Jalón et al., 2018a; Graves et al., 2017; Hernández-Morcillo et al., 2018; Rois-Díaz et al., 2018). Furthermore, if trees and hedgerows were once very common in temperate agricultural areas, their decline over the last century has also led to a loss of knowledge about their management and use (Eichhorn et al., 2006; Herzog, 1998; Rois-Díaz et al., 2018). Finally, the need for numerous administrative documents to justify the distribution of potential funds as well as ownership issues related to leasing land is perceived by many farmers as an important administrative burden (García de Jalón et al., 2018a; Hernández-Morcillo et al., 2018; Lojka et al., 2022; Rolo et al., 2020).

Improvements regarding these different constraints need to be done to foster the adoption of agroforestry in Europe. Improvement strategies can be applied by different actors, which can be classified under five key domains as proposed by Borremans et al. (2018): government domain, research and education domain, enterprise domain, intermediary domain and the society domain (Borremans et al., 2018). So far, most support is initiated by the government domain, the research and education domain as well as the intermediary domain (farm organizations, environmental organizations, landscape organizations, etc.). The enterprise domain (farmers, input suppliers, output buyers, etc.) and the society domain (local residents, consumers, land owners) are still very hesitant in their support, due to the perceived lack of economic opportunities and general unawareness of agroforestry practices (Borremans et al., 2018; Cechin et al., 2021). However, within a market-based approach, consumers and enterprises fulfill important functions that the other sector cannot cover, namely creating supply and demand for agroforestry products (Borremans et al., 2018).

One avenue for improving AFS support that has recently received some attention, and which includes the society and enterprise domains, involves "Community-based Initiatives". In the context of supporting sustainable agricultural practices, community-based initiatives are presented in the literature as potential mechanisms for transforming economic relations in ways that facilitate their implementation (Lund, 2012; Munasib and Jordan, 2011). Community-based initiatives can be a source of pressure on the conventional food system to be more sustainable (Dedeurwaerdere et al., 2017). By bringing consumers and producers together, these structures provide an opportunity to address the lack of output markets and funding sources (Cechin et al., 2021). The potential benefits also include the avoidance of unfavorable conditions on the conventional market by reducing the need for short-term

profitability (Lund, 2012; Munasib and Jordan, 2011). This is possible through the enhancement of knowledge and awareness about alternative farming practices, the creation of social capital and shared responsibility as well as through the lower transaction costs allowing farmers to capture a higher share of the price while keeping prices accessible for consumers (Cechin et al., 2021; Dedeurwaerdere et al., 2017; Lund, 2012; Munasib and Jordan, 2011). As such, community initiatives can be a valid option to foster agroforestry practices in Europe.

Cechin et al. (2021) and Borremans (2019), both initiated investigations where community-based initiatives structures were used as tools to foster agroforestry practice. More specifically, they investigated the case of agroforestry farms organized under the Community Supported Agriculture model often referred to as "CSA". The idea behind the CSA model is direct cooperation between consumers and farmers on a local scale to share the risks and the benefits linked to the production of food through a subscription-based contract (Ernst, 2017). Participants may also share skills, labor, management responsibilities and in some cases capital investments (Galt et al., 2011). Fair prices for produce to support decent wages for farmers, the use of environmentally sound farming practices as well as up-front payment for shares of the harvest are characteristics that help ensure the social, environmental and economic sustainability of the CSA model (Medici et al., 2021). Cechin et al. carried out a financial analysis comparing the economic performance of an agroforestry farm in Brazil under two scenarios, namely a traditional organic outlet scenario and a CSA scenario. They found that the CSA scenario increased the financial viability of the farm by guaranteeing outlets, reducing price volatility and increasing risk acceptance associated with tree management (Cechin et al., 2021). Borremans studied the case of Pomona in Belgium, a multi-stakeholder cooperative operating as a CSA with AFS at its core. She concluded that it was a valuable farming system that might be difficult to replicate on other farms (Borremans, 2019).

This thesis aims to explore farmer's perception of the CSA model as a vehicle to foster the implementation of agroforestry systems in Europe. To my knowledge, the literature covering this topic is limited to the assessment of individual cases already implementing this type of association. While these research show interesting benefits, none has tested the replicability of such a system on non-initiated¹ farms. To investigate the replicability of this association and assess the credibility of this path to foster agroforestry practices, the following research question was posed:

- What are farmer's perceptions regarding the use of CSA structures to support and sustain agroforestry systems?

In order to answer this main research question, the following intermediary research question was posed:

- How can CSA initiatives contribute to the development of agroforestry practices in Flanders?

These research questions were investigated through a qualitative case study that took place in Flanders, Belgium. The Flemish Region is particularly interesting as a case study because it is one of the few regions to have activated specific support measures for agroforestry under both pillars of the CAP since 2011 while having a very intensive land use and a well developed CSA network (Borremans et al., 2018; CSA-netwerk Vlaanderen, 2018; Van Bogaert et al., 2021). The methodology followed in this thesis was inspired by the Grounded Theory from Glaser and Strauss (1967), and followed two distinct phases (Glaser and Strauss, 1967). This methodology was used because it is a systemic approach while allowing flexibility to deal with rich data and bring-up new concepts. The first phase used in this work was useful to understand from a holistic point of view the main characteristics of the CSA model, to highlight the possible link with agroforestry practices and to develop an innovative organizational

¹ Farmers that do not make use of agroforestry or/and that are not organized as a CSA.

model aimed at promoting agroforestry practices in Flanders through the use of CSA structures, namely the CSAF model. In the second phase, the CSAF model was used as an entry point to discuss with "non-initiated"² farmers, referred to as conventional farmers in this thesis. The objective was to explore the possibility of applying agroforestry practices while promoting cooperation within the local community. The conclusions of this work show a low motivation to adopt the CSAF model among conventional farmers. It was found to be too complex to manage for farmers who are already very busy. The increased number of responsibility, the productivity losses and the possible lack of commitment of members over time were the main concerns expressed. Despite these limitations, discussions with conventional farmers have also highlighted potential positive contributions, including the potential for cooperation in the management of trees, opportunities for shared capital investment, improving the image of farmers, and increasing consumer awareness of the reality of farming. More broadly, these results offer new avenues for reflection, particularly regarding the synergies that can be fostered between actors from alternative food networks and actors from the traditional food system through legal clarifications and a gradual shift toward a culture of resilience.

2. Materials and methods

2.1. Case study presentation

The case study of this thesis took place in Flanders. This region is a very interesting sample for studying the development of agroforestry through community initiatives in the general context of industrial agriculture. Indeed, Flemish agricultural lands are intensively exploited with bad consequences on the environment and would greatly benefit from a greater implementation of agroforestry practices. The relevance of this case study is also linked to the limited success of the regional support to promote agroforestry practices which are implemented by the local government for more than 10 years. Finally, the CSA model is well established in Flanders making it interesting to analyze this positive dynamic to support the implementation of AFS. In the following paragraphs these three main reasons are further explained.

Flanders has a very intensive land use which implies adverse consequences on the environment. This region is one of the most densely populated areas in Europe with approximately 490 people per Km² (Avermaete, 2022; Eurostat, 2023; Statbel, 2022). As a result, an important share of the territory is urbanized and only 11% of the Flemish territory is covered with high value ecosystems among which 10% are forests (one of the smallest forest cover in Europe). Furthermore, these high value ecosystems are highly fragmented (Schneiders et al., 2021; Van Bogaert et al., 2021). This situation has two main consequences. First, the pressure on agricultural land is very high, leading to very high prices (53 899 euro/ha) and very intensive agricultural practices in order to make a living out of it. Secondly, this intensive land use leads to low levels of biodiversity on farmland and high pressure on surrounding high value ecosystems (Demolder et al., 2014; Schneiders et al., 2021; Van Bogaert et al., 2021). As such, Flanders is experiencing the adverse consequences of industrial agricultural methods (low biodiversity, water and air pollution, water shortages due to low soil permeability, etc.) and measures to stop and reverse these are more than necessary. Any new methods that would ease the adoption of agroforestry (or any other ambitious environmentally friendly practices) by conventional³ Flemish farmers would be valuable knowledge for similar farmers in other European contexts.

² Farmers that do not make use of agroforestry or/and that are not organized as a CSA.

³ Farmers that do not make use of agroforestry or/and that are not organized as a CSA.

Flanders is one of the few regions across the EU who activated agroforestry measures 8.2 (Figure 2) and 222 (Figure 1) for the establishment of new AFS in the CAP 2014-2020 and the CAP 2007-2013 respectively (Borremans et al., 2018; Donham et al., 2021; Santiago Freijanes et al., 2015). In addition, and despite these measures, the objectives set by the region in terms of new agroforestry projects have not been achieved. Between 2012 and 2019, 127 hectares of agroforestry have been planted with support of the Flemish government while the objective of 300 hectares was expected by 2020 (Borremans, 2019, p. 45; Reubens et al., 2019). In addition, only half of Flemish farmers are familiar with agroforestry practices and they have a very low intention to adopt agroforestry practices (Borremans et al., 2016) which is aligned with what is expressed by other European farmers throughout the literature (Borremans, 2019; Graves et al., 2017; Lojka et al., 2022).

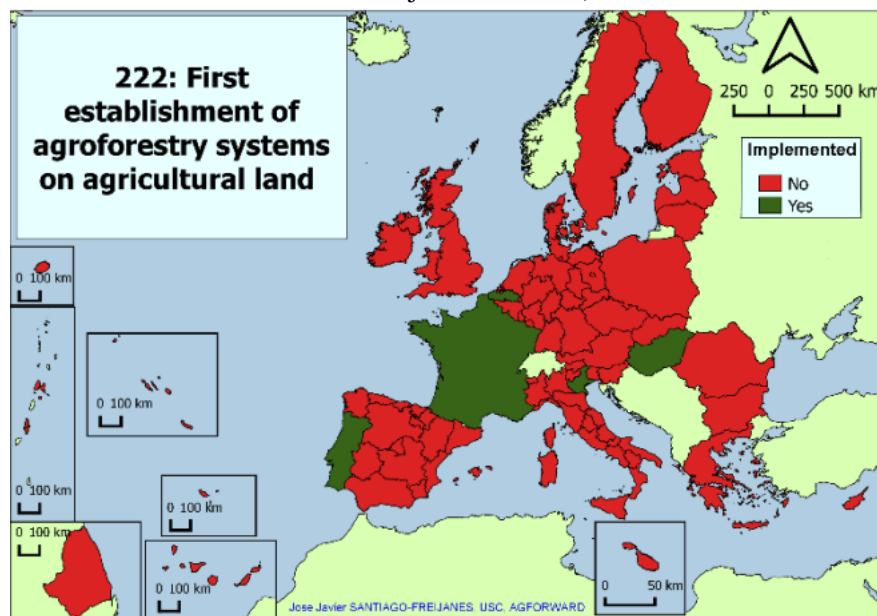


Figure 1: In green, region and countries of the EU which implemented measure 222 during the CAP 2007-2013. This was the case for Flanders (Santiago Freijanes et al., 2015)

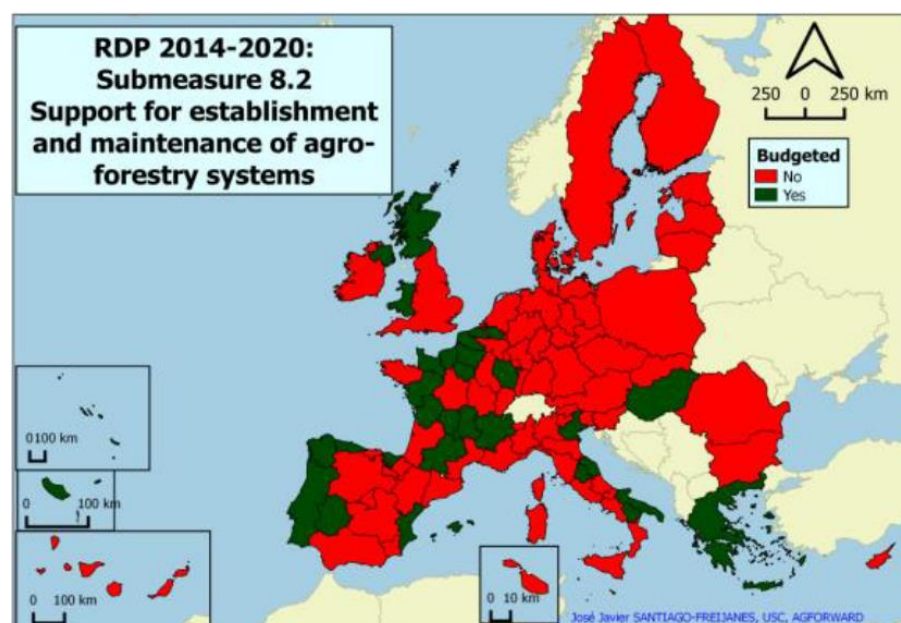


Figure 2: In green, region and countries of the EU which implemented measure 8.2 during the CAP 2014-2020. This was the case for Flanders (Mosquera-Losada et al., 2016)

It is also a good case-study as the CSA model is already well developed. The first CSA farm appeared in Flanders 15 years ago. Since then, the system has grown quite rapidly to nearly 90 structures today and feed around 10 000 people. Most of the Flemish CSA are part of the “CSA-netwerk Vlaanderen” which is an organization that fosters the exchange of experience between CSA farms, promotes the model across Flanders and supports new projects (CSA-netwerk Vlaanderen, 2018). The successful development of the classical CSA model in Flanders creates the possibility to brainstorm on new forms of CSAs including forms that could foster the implementation of agroforestry practices.

2.2. Grounded theory

The methodology used in this study is inspired by the “Grounded Theory” presented by Anselm Strauss and Barney Glaser in 1967 (Glaser and Strauss, 1967; Mortelmans, 2007; Ramalho et al., 2015). It is a qualitative research method that uses an inductive approach and cyclical procedures. No existing hypothesis is needed to start working with the Grounded Theory. Cycles start with the collection of empirical data which are then analyzed in order to generate general rules. In order to confirm these rules a new cycle can be initiated. This iterative process should take place until universal rules are found and can constitute a new “theory” (Charmaz, 2006; Hussein et al., 2014; Mortelmans, 2007).

This study followed the principles of the Grounded Theory because it is a systemic approach which also offers flexibility to dive into the rich data and bring-up new concepts. It is a heuristic strategy that does not deliver the most rational or perfect solutions but it allows the researcher to untangle new perspectives while offering clear guidelines on how to follow the research work (Charmaz, 2006; Hussein et al., 2014). The new perspectives that can be obtained through this methodology, are particularly well suited to the objective of this work as it aims at developing an innovative organizational model to promote agroforestry practices.

As just mentioned, the aim of this work was not to find new rules and create new theories but rather to inductively create a new organizational model based on local communities that could allow a larger implementation of agroforestry practices in Europe. The inductive aspect of this process is very important. Therefore, a first cycle looked at CSA farms in Flanders from a holistic perspective (through interviews) in order to understand their local characteristics and their potential link with agroforestry practices. Based on these results grounded in the collected empirical data, an innovative organizational model was conceptualized and called “Community Supported Agroforestry” (CSAF). A second cycle was initiated where the CSAF model was used as a discussion/exchange platform with conventional Flemish farmers in order to assess its feasibility on their respective farms and envision the potential of CSA structures to support agroforestry practices. In Figure 3, the methodological steps are presented visually, highlighting the two different cycles, namely the reconnaissance round (first cycle) and the feasibility analysis (second cycle). The next section describes the different steps followed within the two cycles.

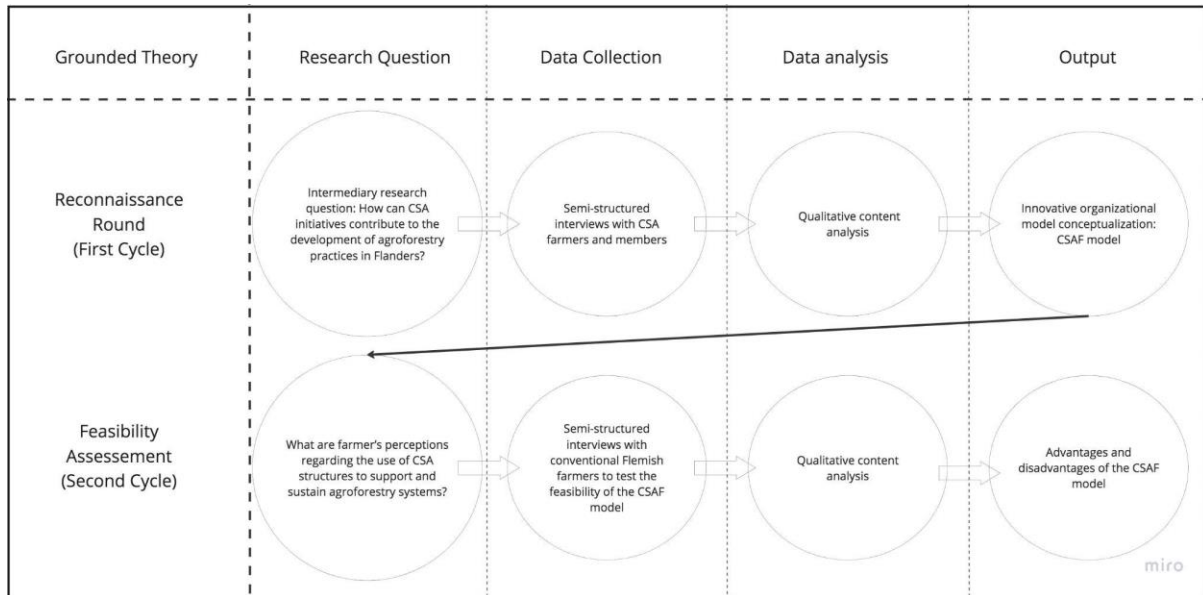


Figure 3: Methodological steps followed in this work.

2.3. Reconnaissance round

The reconnaissance round was initiated based on the intermediate research question: How can CSA initiatives contribute to the development of agroforestry practices in Flanders? This analysis took place on different levels, namely the agronomic and environmental, social and economic levels. Beyond the elements that can be found in the literature dealing with CSA structures, the idea here was to get an overview of what is actually happening out there in the field in the specific case of Flanders. This field based overview was then central in the conceptualization of the CSAF model. The following paragraphs present the selection of interview participants, data collection, data analysis and the model conceptualization methodology associated with this first cycle.

2.3.1. Selection of interview participants: reconnaissance round

In order to get an overview about the potential role that the CSA model could play to support agroforestry practices, a combination of CSA farmers and CSA members⁴ were interviewed on different CSAs across Flanders (Figure 4). Internet research was used to find these CSAs. “Recht van bij de boer” and the “csa-netwerk” websites were the main source of contacts (CSA-netwerk Vlaanderen, 2018; “Recht van bij de boer,” n.d.). CSA farmers were then contacted via email. A total of 31 CSA farmers were contacted, sixteen responded, and eleven agreed to be interviewed. These interviews took place during the month of May, June and July 2022.

CSA members were contacted through the interviewed farmers. The latter were asked if they could pass on a request to their respective members. This made it possible to interview eleven members during the same period of time.

⁴ CSA members are consumers who pay a membership fee at the beginning of the season to receive a share of the harvest (Medici et al., 2021).



Figure 4: Approximate location of the eleven CSA farms surveyed in Flanders (Belgium).

2.3.2. Data collection: reconnaissance round

In order to collect rich data, semi-structured interviews were organized with the CSA farmers and the CSA members. This method was used to get the interviewees to fully express their thoughts and give them the possibility to deepen the aspects that were most important to them or to nuance their answers (Kvale, 1996). The interview guides were used to center back the interviews on the main themes of the research without being too directive in case the interviewees were deviating. Two slightly different interview guides were created, one adapted to the farmers (Appendix 1) and another one adapted to the CSA members (Appendix 2). The main topics covered during the interviews were the following ones:

- their personal motivations for participation to a CSA
- their point of view on agronomic and environmental aspects of their CSA
- their point of view on social aspects of their CSA
- their point of view on economic aspects of their CSA

Eight CSA farmers agreed to take an interview on their farm and three were organized via video conference. Four member interviews took place on the farms where they had their membership and the others were organized online. Among the interviews organized on site, six (two farmers, four members) were conducted while working with the farmer or members in the field, following the principles of “walking interviews” or “go-along interviews” as it was more convenient for them (King and Woodroffe, 2019; Van der Schueren, 2021). Most interviews ranged in length from 45 minutes to 1 hour and 30 minutes.

The majority of interviews were recorded while ensuring that interviewees received an explanation sheet detailing the future use of the collected data (Appendix 3). However, none of the interview transcripts were included in the appendix to maintain the anonymity of the participants. This decision was also part of the strategy to encourage candid and spontaneous responses.

2.3.3. Data analysis: reconnaissance round

The purpose of the interview analysis was to identify the main characteristics of the CSA model and to highlight the possible link with agroforestry practices. Therefore, a qualitative content analysis of the interviews was conducted. As a first step, a matrix (Excel file) was created and organized according to the structure of the interviews. The recordings were then listened to and progressively segmented into meaning units and placed under a corresponding category, namely agronomic and environmental characteristics, social characteristics and economic characteristics as pictured in Figure 5. Meaning units were raw quotes and descriptive notes that captured the idea, feeling, or physical reaction of the interviewee. The used categories were directly related to the interview structure but it does not mean all the quotes placed under a specific category were collected in the corresponding part of the interview. However, the interview segments that were not aligned with the objectives of the reconnaissance round were not transcribed as meaning units and were left out of the matrix.

Later, the meaning units were abstracted into sub-themes and then into themes, which can also be seen in Figure 5 (Graneheim and Lundman, 2004). Themes were then placed under sub-categories, namely strengths and constraints (Figure 5). The matrix was useful to ensure the clarity and a smooth navigation through the collected data as suggested by Miles and Huberman (Miles and Huberman, 1994; Mortelmans, 2007). This was realized for both CSA farmers and CSA members separately.

Social characteristics (Category)			
Sub-categories	Themes	Sub-themes	Meaning units (Quotes/descriptions)
Strengths	Community feeling	Shared governance	Member: "Every November, there is a general assembly organized by the farmer to show the accountability of the CSA, to ask the member what went well and what went wrong and possible improvements."
			Farmer: "The new strategy plan has been designed by members in association with some workers within a task group. At the end, the direction committee will have the final word but it is important to involve the members in the creation of this strategic plan."
			Members: "You get the possibility to pay a price adapted to your revenues and you can spread your payment along the year."
			Farmer: "Task group meetings on different topics are organized along the year in order to hear the potential recommendations from the members. This is organized following different topics in order to take the time to fully cover all the different aspects of the farm. Transparency toward the members is central in our farm."

Figure 5: Qualitative content analysis operated on the interview recordings from the reconnaissance round.

2.3.4. Model conceptualization: reconnaissance round

The reconnaissance round finally led to the creation of a conceptual model which was called "Community Supported Agroforestry" (CSAF). The creation of this concept was based on the results from the interviews combined with a personal reflection. The personal reflection took an agroecological approach where the agricultural system was thought to be integrated into the local ecological and socio-economic landscape (Gliessman et al., 2015). It aimed to be an organizational model that could "ease" the implementation of AFS in Flanders. This model tries to combine the different characteristics that were considered as strengths and to reduce some of the characteristics that were identified as constraints during the data analysis. As such, the presentation of this concept in the result part (Section 3) was also used as a way to present the results from the interviews with CSA farmers and CSA members.

2.4. Feasibility analysis of the CSAF model

The feasibility analysis was initiated in order to test the CSAF model. Therefore, the conceptual model developed at the end of the reconnaissance round was presented and discussed with conventional⁵ farmers found throughout Flanders. Their opinions were useful to assess the feasibility of such a model on their respective farms and to assess the replicability of it on other European farms. In addition, it was possible to gather interesting insights regarding the potential use of community instruments and/or agroforestry practices on their farms. The following paragraphs present the selection of interview participants, data collection and data analysis methodology related to this second cycle.

2.4.1. Selection of interview participants: feasibility analysis

For the second cycle, nine additional farmers were interviewed. The main criteria for this sample were the "non-initiated" characteristics of these farms. This means that these farms did not practice agroforestry and/or were not organized as a CSA. The second criterion was their location, which had to be in Flanders (Figure 6). To find them, Google searches were made using keywords such as "livestock farm", "dairy farm", "arable farm", but also "farm shop", "farm butchery", "ice cream farm". Social media searches were also conducted. A total of 45 farmers were contacted and about fifteen of them responded, of which eleven agreed to be interviewed and two had to be discarded because they were not located in Flanders. All these interviews took place in November and December 2022.



Figure 6: Approximate location of the nine conventional farms surveyed in Flanders (Belgium).

2.4.2. Data collection: feasibility analysis

All interviews were formatted as semi-structured interviews. Similar to the first cycle, this interview method was used to allow interviewees to fully express their thoughts and to give them the opportunity to elaborate on the aspects that were most important to them or to nuance their responses (Kvale, 1996). The interview was organized by an interview guide, which made it possible to bring the interviews back to the main themes of the research without being too directive in case the interviewees deviated (Appendix 4). Before presenting the CSAF model and discussing its feasibility, they were first asked to express their opinions on agroforestry practices and community initiatives. The aim was to link the interview to more concrete situations, given the hypothetical nature of the CSAF model. Thus, the interview was organized as follows:

⁵ Farmers that do not make use of agroforestry or/and that are not organized as a CSA.

- General information about the farm and the farmer
- Point of view on agroforestry practices
- Point of view on community initiatives
- Presentation of the CSAF hypothesis
- Discussion of the CSAF hypothesis

All interviews were recorded with the consent of the interviewees. None of the interview transcripts were included in the appendix to protect the anonymity of the interviewees. This was also part of the strategy to encourage spontaneous responses. All interviews were conducted on site and ranged in length from 43 minutes to 1 hour and 36 minutes.

2.4.3. Data analysis: feasibility analysis

The purpose of conducting interview analysis during the second cycle was to highlight the insights shared by farmers, providing an understanding of the potential of utilizing CSA structures to support agroforestry practices on arable and livestock farms. To achieve this, the CSAF model served as a platform for discussion and exchange with the farmers. Subsequently, a qualitative content analysis was carried out on the interview data. As a first step, a matrix (Excel file) was created and organized according to the structure of the interviews. The recordings were then listened to and progressively segmented into meaning units and placed under a corresponding category. Meaning units were raw quotes and descriptive notes that captured the idea, feeling, or physical reaction of the interviewee. Later, the meaning units were abstracted into themes (Graneheim and Lundman, 2004). Themes were then grouped into sub-categories (as represented on Figure 8) that were transversal to all categories as shown on Figure 7. Finally, sub-categories that were considered as advantages of the CSAF model (green part on Figure 10) were separated from sub-categories considered as disadvantages (red part on Figure 10). The different organization in the data presentation compared to the reconnaissance round was justified by the higher complexity of the collected data. As such, this modified structure was helpful to present the data in a comprehensive way.



Figure 7: General mind map presenting the abstracted results of the feasibility analysis via themes that are part of vertical categories of transversal sub-categories.

Sub-categories	Themes	Quotes/descriptions
Marketing related forces	Good marketing tool	"It's important to have a story to tell where your customers can find themselves in it. And CSAF can be that story."
	Create awareness for farmers' reality	"If we strengthen our relationships with consumers, then a problem that is considered as a farmer problem today can later be shared by consumers. Simply because if they know us better then they will no longer accept the way we are sometimes used or mis considered. The "they" will turn into a "we"."
	Promote farmer's image	"Being a respected person within the community requires extra time and effort from the farmer but it is of course a nice recognition if you manage to be that person."

Figure 8: Qualitative content analysis operated on the interview recordings from the feasibility analysis.

3. Results

3.1. Reconnaissance round

The results of the reconnaissance round were derived from the interviews with CSA farmers and CSA members. They were asked to talk about their motivations to participate in their respective CSAs and to describe their perception of the agronomic, environmental, social and economic aspects of their participation. Their answers were analyzed in order to highlight the main characteristics of the CSA model and to highlight the possible link with agroforestry practices. Based on these characteristics, I conceptualized an innovative organizational model aimed at promoting agroforestry practices in Flanders through the use of CSA structures. This model, which I called Community Supported Agroforestry (CSAF), tries to combine the different characteristics that were considered as strengths by the respondents and to reduce some of the characteristics that were identified as constraints. In the next section, I first present the interviewed farmers and their farms as well as the interviewed CSA members. Furthermore, I explain the CSAF concept while presenting all its constitutive elements which are the results of the interviews. Further details about these results can be found in Appendix 5.

3.1.1. Interviewed CSA farmers

Farm and farmers' information	CSA1	CSA2	CSA3	CSA4	CSA5	CSA6	CSA7	CSA8	CSA9	CSA10	CSA11
CSA type	Box CSA with cooperative form, farm shop	Self-harvest CSA and weekly orders	Self-harvest CSA	Box CSA, partnership with consumer cooperative	Box CSA, Self-picking CSA, Pre-orders, weekly market	Self-harvest CSA	Box CSA with cooperative form, farm shop, web shop	Self-harvest CSA, Yearly dairy product subscription	Self-harvest CSA	Self-harvest CSA	Self-harvest CSA, Pre-orders, weekly market
Production	Vegetables, fruits, eggs	Vegetables, small fruits	Vegetables, small fruits	vegetables	flowers, eggs, chicken meat, lamb meat and pork meat	Vegetables, small fruits	Vegetables, small fruits, eggs and chicken meat	Vegetables, dairy, meat, small fruits and fruits	vegetables, fruits, small fruits	Vegetables, small fruits	Vegetables, small fruits, eggs
Implemented AFS	Yes	No (hedges)	No	No	Yes	No	No (hedges)	No	Yes	No	Yes (Did not consider it as AFS)
Numbers of shares	70 (200 projected)	120	150	120	no data	175	1300	750	450	330	165
Surface area (in hectares)	3,4	4,5	3	1	5	1,5	22	45	4,7	3	2,7
Existence of the CSA (in years)	4	12	10	4	3	9	27	15	11	7	4
Workforce (full-time equivalent)	no data	1,5	2	2	1	1	no data	7,5	2	1,5	1,5
Peri-urban	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Raised in connection with the agricultural sector	No	No	No	No	No	No	No	No	No	Yes	No
Farmer gender	Male/Female	Male	Male/Female	Male	Female	Male	Male/Female	Male/Female	Male	Male	Male
Farmer experience (in years)	2	12	5	4	3	9	no data	15	11	7	4
Organic label	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Professional reorientation	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Farmer age (In years)	33	55	40	48	28	39	no data	45	54	53	41

Table 1: Information on interviewed CSA farmers and their farms.

Eleven CSA farmers were interviewed to analyze the main characteristics of CSAs in Flanders and to discover potential links with agroforestry practices. Table 1 represents the main characteristics of the interviewed farmers and their farms. All the CSA farms were in the direct surrounding of a big city.

Eight out of eleven CSAs were entirely or partly self-harvest farms⁶ among which four were pure self-harvest farms (Table 1). There was no pure box CSA⁷ in the interview set. All box CSAs were also selling in parallel through organic shops, restaurants delivery or markets (Table 1). Most of those who were combining self-harvesting with other marketing strategies were doing it in the hope to rely, in the future, solely on self-harvesting members as it was considered to be less resource demanding for the farmers to serve them.

In terms of production, most CSAs were producing vegetables and small fruits. There was only one exception as it was producing meat box subscriptions with eggs and self-picking flowers. Another farm was producing meat and dairy products in combination with self-harvest vegetables (Table 1). The number of productive hectares for each farm varied between 45 hectares of land for the biggest farm and a bit more than one hectare for the smallest with an average of 8,7 hectares per farm (Table 1).

Among the eleven CSA farmers interviewed, only one had a background of being raised on a farm and receiving traditional agricultural training. In contrast, the remaining farmers transitioned to farming after pursuing alternative training in agriculture, often through internships on other CSA farms in Belgium or abroad. Notably, the three most experienced farmers among those interviewed were all members of the founding committee of the CSA movement in Flanders, known as "CSA-Netwerk Vlaanderen."

Farmers were also asked more specifically if they were familiar with AFS and if they were practicing it. While they all knew about it, only three farmers mentioned that they were implementing it. In two of these farms, the AFS was even the starting point of their respective initiatives as they started farming in order to implement an AFS and it was at the center of their communication strategy. One farmer reported incorporating rows of trees within his vegetable beds but he did not consider it as an AFS.

3.1.2. Interviewed CSA members

Member profile	Member 1	Member 2	Member 3	Member 4	Member 5	Member 6	Member 7	Member 8	Member 9	Member 10	Member 11
Gender	Female	Female	Female	Female	Female	Female	male	male	Female	Female	male
Membership	Box model	Box model	Self-harvest	Self-harvest	Self-harvest	Box model	Box model	Box model	Box model	Self-harvest	Self-harvest
Age (years)	45	32	54	42	40	61	74	49	49	50	39
Work schedule	Half-time	Three-fourth	Half-time	Full-time	Full-time	Full-time	Retired	Full-time	Full-time	Full-time	no data
Education	Master degree	Master degree	Master degree	Master degree	College degree	Master degree	College degree	no data	Master degree	Master degree	Master degree
Cooperant	Yes	Yes	No	No	No	No	No	No	No	No	No
Years of membership	4 years	6 months	around 10 years	10 years	5 years	1 years	4 years	4 month	4 years	2 years	4 months
Young children	1 child, 1 teenager	no	2 old teenagers	3 young children	1 young child	Grandchildren	Grandchildren	no	2 teenagers	no	2 young children
Knowledge of AFS	Yes	No	No	Yes	No	Yes	Yes	Yes	No	No	No

Table 2: Information on interviewed CSA members.

Eleven CSA members were interviewed to complete the analysis of CSAs in Flanders. As their interests may not always align with those of the farmers, it was important to get their perspective on their

⁶ In self-harvest CSAs, farmers are responsible for vegetable production and communicating with members to inform them about the vegetables that can be harvested. However, farmers are not responsible for the actual harvesting and distribution of the produce. Consumers, who have paid the upfront fee, are responsible for harvesting their own shares based on what is available (van Benthem, 2017; Zoll et al., 2018).

⁷ In box CSAs, farmers are responsible for the production, the harvest and the distribution of the production. Consumers, who have paid the upfront fee, receive boxes with the assorted farm products (Galt et al., 2011).

motivation and expectations regarding environmental, social and economic aspects. Table 2 represents the main characteristics of the interviewed members.

with a strong educational background. Out of the total participants, six were affiliated with a box model CSA, while the remaining individuals were associated with a self-harvest farm. Additionally, two members were actively involved as cooperators of their respective CSA farms. It is worth noting that at least six interviewees held full-time jobs, and an equal number of participants were parents to children (Table 2). Moreover, the overall understanding of agroforestry practices among CSA members was found to be limited, with some individuals discovering it through their involvement in the CSA.

3.1.3. Model conceptualization: Community Supported Agroforestry (CSAF)

The CSAF model follows the same principles as a self-harvest CSA farm. But instead of relying on vegetables, this system would be based on diversified fruit trees in arable or pasture land belonging to conventional farmers. This structure would be supported by shared investments and annual membership fees. The fields would be directly accessible to members which would allow them to harvest fruits directly from trees while enjoying a nice moment in the countryside. Further than promoting agroforestry practices by creating steady revenues around it, this model would create a space where consumers and farmers can meet and collaborate. Increasing contacts between farmers and consumers would raise reciprocal awareness, strengthen social cohesion among rural communities and promote short supply chains for agricultural products.

All the characteristics described below are also in the following mind map representing the CSAF model (Figure 9). Green colors refer to agronomic and environmental characteristics, pink colors refer to social characteristics and blue colors refer to economic characteristics. The dark color sticky notes represent constraints that the CSAF model tries to reduce while light color sticky notes are the strengths on which the model is based. Furthermore, all the themes utilized to construct the CSAF model were derived directly from quotes and descriptions, which are presented in Appendix 5.

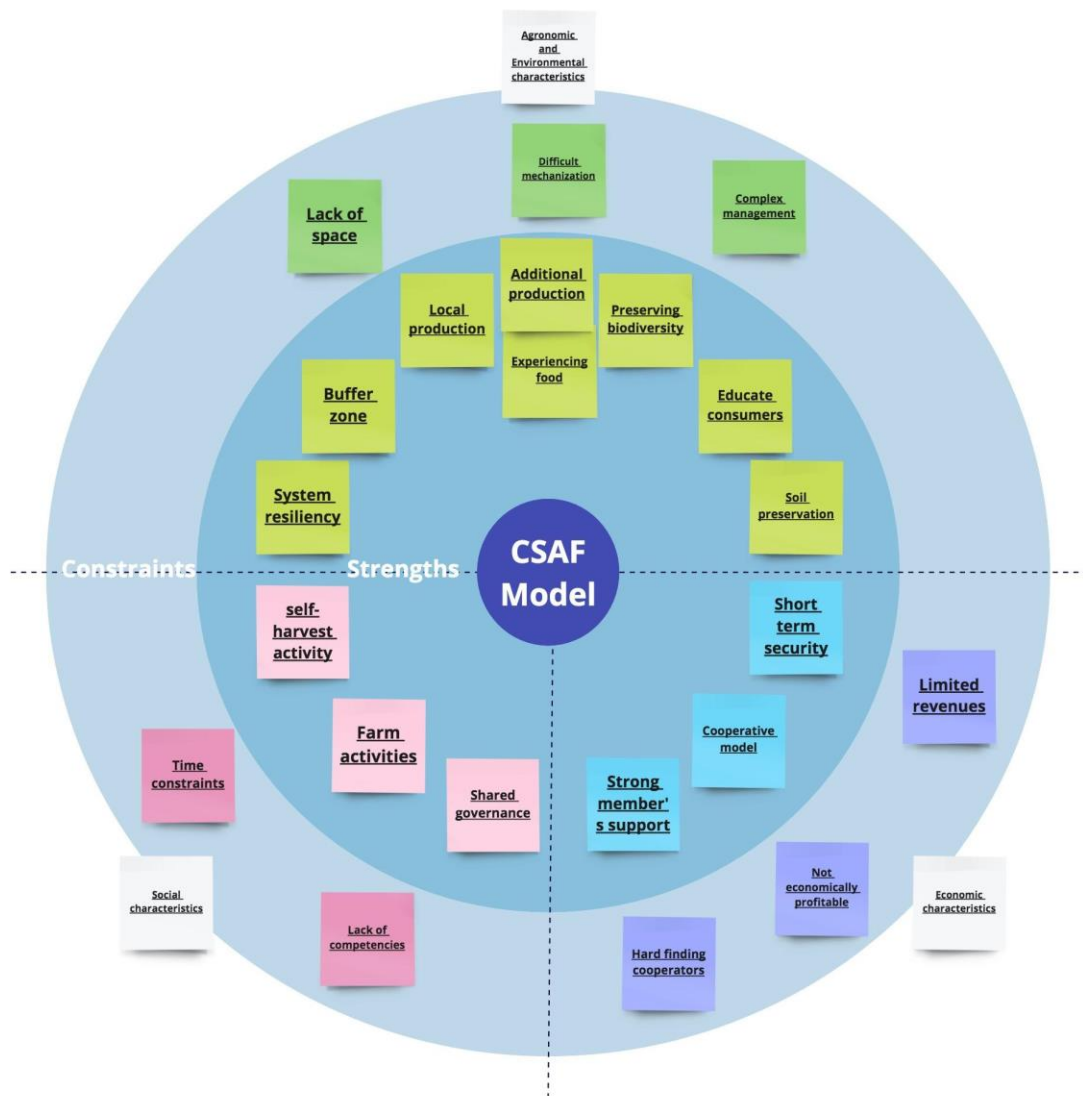


Figure 9: Mind map presenting all the characteristics of the CSAF model.

3.1.3.1. Agronomic and environmental characteristics

Agronomically, the idea is to implement fruit trees on arable or livestock farms in order to diversify the farm productions and increase the farm resiliency by sharing the risks of production failures on different crops. The diversity of fruit trees would also be maximized in order to have the longest production season possible. Even uncommon fruit trees would be planted. In addition, the availability of local fruit production in a self-harvest model would allow for the reduction of transportation and packaging associated with this food, while storing carbon through tree growth.

- Additional production and local production: A strong interest for local fruits was expressed by some CSA farmers and CSA members in addition to their vegetables subscription.
- System resiliency: Farmers described diversifying their production as a deliberate approach to ensure a consistent supply of crops for distribution to their CSA members. This practice aimed to mitigate the risk of potential shortages in any particular vegetable. In situations where a specific vegetable had a reduced quantity, CSA members mentioned that this shortfall was typically compensated by overproduction of other vegetables.

- Educate consumers: The diversity of products in the CSA shares was also perceived by CSA members as an opportunity to learn about new products and to better adapt their diet to the availability of local and seasonal products.
- Experiencing food: For members, self-harvesting provided a direct connection to food, which was important for understanding how vegetables are actually grown and for exposing their children to a variety of vegetables.

The trees would also be used as buffer zones that can benefit the crops and/or the livestock. The buffers created by trees and bushes would also allow the creation of an ideal refuge for biodiversity and host beneficial organisms for crops. Furthermore, the presence of trees can increase the total biomass production per hectare and contribute to soil fertility increase .

- Buffer zones: Different roles were mentioned by CSA farmers regarding the potential of buffer zones. They contribute to the creation of a beneficial microclimate for vegetable crops through the shading effect and the modification of the air flows and water flows. Another function that seemed important to many farmers was the protective screen that it created against spraying from neighbors.
- Preserving biodiversity: Trees were also mentioned as a reservoir of biodiversity that plays an important role in the regulation of insects and other pests populations in their crops and a positive role on pollinators.
- Soil preservation: On top of that, different farmers explained that trees were valued for their ability to bring up important minerals to the surface through their root system and branches were used to enrich their composts.

However, the number of trees per hectare would be decided in order to maintain easy access and good maneuverability for machines. The implementation of an adapted design would help to limit the impact on the main crop productivity while ensuring CAP subsidies eligibility and enough fruit production for the expected future community. With a large number of hectares, it would be possible to implement a low density agroforestry system spread over several hectares which would deliver sufficient fruit production while limiting the impact on the core production and maintaining good maneuverability. This model would take an “alley cropping” like design where a few rows are installed with large inter-crop width which would reduce the overall system complexity .

- Lack of space: The lack of space was presented as a major limiting factor by CSA farmers. All the CSAs which expressed this lack of space had a surface of less than 3 hectares and none of them had agroforestry implemented on their farm. They argued that they would not be able to plant enough trees to cover the demand from their members or to deliver enough ecosystem services.
- Difficult mechanization: The trees were also perceived by CSA farmers as a limiting factor in the use of tractors on the field and in the use of tools in the soil because of the branches and roots, especially on small fields.
- Complex agronomic management: Finally, CSA farmers pointed to the additional planning work needed to deal with tree/crop interactions, the maintenance work and its timing during the season as other important constraints.

3.1.3.2. Social characteristics

The concept of CSAF is based on the introduction of fruit trees in arable or pasture fields which would be directly accessible for members through walking paths alongside the tree rows. This way, members would be able to harvest the fruits directly from the trees while enjoying a nice moment in the countryside.

- Self-harvest activity: For the majority of CSAs, it was important to make the farm a place where members could have a good time. This was especially true for self-harvest CSAs, where many members described picking their own shares as a relaxing time after work.

This model would also create a space where consumers and farmers can meet and collaborate. Promoting social interactions and community feeling is therefore essential. As it would be a complex and time consuming task for farmers, a community manager could be hired in order to assist farmers on these tasks. As such this person would also be responsible for organizing farm events like parties, conferences, workshops and to foster their collaboration on task forces, community work days and general assemblies.

- Farm activities: Promoting the community feeling was important for farmers, as they said it aimed to increase support from members. In order to do so, different farm activities were described like workshops, festive events and open door days which were purely recreational and aimed to foster the sense of community among members but also to attract new members.
- Shared governance: In order to ensure transparency toward the members, nearly all the interviewed CSAs, including those not organized under the cooperative model, organized a general assembly or something related in the winter time to talk or decide about important aspects of the farm and the farm membership.
- Time constraints: Most CSA farmers and CSA members, however, acknowledged the lack of community feeling among the CSA community. For the farmers, welcoming members was described as a very demanding task in terms of organization and follow-up which made it very difficult to add on top of the farm work. For members, their work and their children would not allow them to get more involvement in the farm community. Still, few farmers explained that festive events were very effective at attracting members and their children as they were taking place in the evening.
- Lack of competences: Furthermore, it was explained by farmers that specific competencies and facilities were needed in order to successfully promote social interactions.

3.1.3.3. Economic characteristics

The financial and legal structure of the CSAF model would be first based on a cooperative model where the initiators of the project would be required to take part in the capital through “long term share holding”. This shared investment structure would help overcome the barrier link to the initial investment needed for the design, the installation and the maintenance of the trees during the first years. However, in order to start the project the number of people bringing capital would need to be large enough to create a community that is able to maintain itself over the years. Therefore, a low individual capital contribution should be preferred over a high individual contribution in order to attract people with less revenues as well.

- Strong member's support: Shared capital investment was considered by farmers as an opportunity offered by the CSA model. Many explained that they asked their members to help them fund new infrastructure such as land, greenhouses or equipment through loans. Farmers were overall surprised by the high willingness of members to support the farm's investments.

- Cooperative model: The cooperative model was also implemented by farmers in order to fund new investments but also to increase member's involvement in the farm project and as a way to ensure the continuity of the farm after they leave it.
- Hard finding cooperators: For some members the capital investment was perceived as charity that they could easily afford. They did not expect any return, they just wanted to help the development of the project. However, investing capital on top of the membership was not possible for some other interviewed members as they explained not having enough resources for that. Furthermore, the only CSA farm with investment obligations had trouble finding enough members.

Later, as soon as the system would be productive, cooperators would also be required to pay a yearly fee at the beginning of the season to get the opportunity to actually harvest the fruits. This yearly fee would be the main revenue source from the trees for the farmer and to pay the social manager. For the farmers, the up-front payment should also provide some mental comfort from the beginning of the season. By the time the system would be productive, it would be also possible to enter the CSAF without participating in the capital as it would be in the interest of the farmer and the cooperators to welcome more people to match the demand with the potential fruit production and avoid fruit wastes. The possibility to enter the CSAF without being a cooperator is also important to attract more people with less financial abilities.

- Short term security: Many farmers mentioned the benefits of the up-front payment for their activities, namely the short term financial security that it provides and the ability to stay independent of the regular market prices. A few farmers relativized the importance of this security as they were well aware that a failed year would cause many members to leave and make the next year difficult. Still, the up-front payment was described as particularly useful for paying for all the big expenses at the beginning of the season, such as seedlings, seeds, compost, etc and as such was a source of mental comfort. Behind the economic opportunity, it was also a political statement. Running a CSA farm was a way for farmers to put into question the most prevalent economic model. For members, the up-front payment was mainly a way to support the project.
- Limited revenues: The up-front payment made it also difficult for members to compare the price of the vegetables in their CSA compared to those of other food stores but many considered that it was financially interesting as it was difficult or impossible to find the same quality, diversity and freshness in these stores. If none of the interviewed members had problems with paying their yearly membership, some explained that they knew people who stopped because it was too expensive and they could not afford variations in their shares.

The loss of space and production link to the trees should be at least compensated by the revenues linked to the yearly memberships or by subsidies. The combination of both should provide a net benefit to the farmer. In order to bring extra economical benefits, this structure could also be used as a new outlet for the main product of the farm or other local products. If the farmer is not yet selling through short supply chains, this could be a motivation to start. This way, members would get double access to local products. Finally, the self-picking aspect of the CSAF project is central to ensure the profitability of this structure and to avoid too much additional work for the farmer as it values the fruits without requiring the farmer to take additional steps to harvest, sort and package them.

- Not economically profitable: One farmer pointed out the lack of profitability associated with agroforestry systems due to the significant workload associated with maintaining the trees in order to have "clean" and valuable fruit. While another farmer pointed out that members were

really motivated by the concept of self-harvesting and were even willing to pay for access to this type of activity.

3.2. Feasibility analysis

The feasibility analysis was initiated in order to test the CSAF model in Flanders. Therefore, the CSAF model was introduced and discussed with conventional Flemish farmers. In the context of this thesis, the term "conventional" specifically refers to farmers who had not adopted agroforestry practices or were not involved in CSA structures. The results of this feasibility analysis are interesting to assess the potential of CSA structures in support of agroforestry practices. Farmer's perceptions about the CSAF model are presented in two sections, namely a section including advantages (Figure 11) and one including disadvantages (Figure 12). In both of these sections, the main themes are described following their subcategories which are transversal to their main categories as shown on Figure 10. Before presenting the advantages and disadvantages sections, the main characteristics of the interviewed conventional farmers are presented and illustrated in Table 3. Furthermore, all the themes were derived directly from quotes and descriptions, which are presented in Appendix 6.



Figure 10: Themes as a result of the feasibility analysis are organized following their subcategories (horizontal) and their categories (vertical). Green subcategories picture the advantages of the CSAF model while red subcategories picture disadvantages.

3.2.1. Conventional farmers

Nine conventional farmers were interviewed to analyze the feasibility of the CSAF model. In Table 3, the main characteristics of the interviewed farmers and their farms are represented.

The number of productive hectares for each farm did vary between 11 and 80 hectares with an average of 44,3 hectares per farm. All the farms sold part of their production via short supply like their own farm shop or via direct order on the farm. Eight farms were livestock farms who were producing parts of the animal feed on arable land, while two farms were specialized in the production of vegetables for the wholesale market. All the interviewed farmers were raised in connection with the agricultural sector and most took over their parents' farm or were still working with their parents. Most of them followed classical agricultural training.

Regarding agroforestry practices, only two farmers did not know what agroforestry was. The rest of the interviewees knew about agroforestry. Among those who knew it a distinction can be made. Four of them were aware and informed about AFS, while three of them had just heard about it. Only one farmer had purposefully implemented an AFS on his farm. Three other farmers mentioned that they had hedges, forest hedges and some fruit trees in their field, but they did not refer to it as agroforestry and two out of them were the farmers that did not know what agroforestry was. Three farmers declared that they had no AFS and were not planning to install one. Finally, two farmers had no AFS yet, but were planning to do it in the next few years. Non-profit organizations promoting agroforestry were found as the main source of information about this practice followed by the agricultural press.

Farmer and farm's general information	Farmer 1	Farmer 2	Farmer 3	Farmer 4	Farmer 5	Farmer 6	Farmer 7	Farmer 8	Farmer 9
Farmer gender	Male	Male/Female	Male	Male	Male/Female	Male	Male/Female	Male	Male
Education	Master degree	College degree	Bachelor degree	Master degree	High school/College degree	College degree	College degree	High school	High school
Organic label	No	No	No	No	No	No	Yes	No	Yes
Years of experience	5	12	6	7	2	17	13	25	26
Wife associated	No	Yes	No	No	Yes	Yes	Yes	No	Yes
Farmer raised in connection with the agricultural sector	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Parents jointly managing the farm	80%	0%	30%	80%	20%	0%	0%	0%	0%
Surface area	30	11	80	40	45	35	55	60	43
Proportion of grassland	15%	100%	40%	12,50%	22%	0%	36%	23%	100%
Proportion of leased land	60%	91%	60%			71%	35%	80%	
Production	Pig producer	Cattle fattener	Dairy producer	Pig producer	Cattle fattener, potatoes	vegetables	Dairy producer, Cattle fattener, high stems fruits	Vegetable producer and cattle fattener	Dairy producer
Farm shop	Butchery and retail shop	Butchery shop, Farm visit and event organization	Ice cream shop	Butchery and retail shop	Butchery shop	Retail shop	Orders	Retail shop	Ice cream shop
Implemented AFS	No (Landscape element+planning it)	No	No (landscape elements)	No (Landscape element+Afforested land)	No (landscape elements)	No (planning it)	Yes (Fruit trees+Hedgerows)	No (landscape elements)	No (landscape elements)

Table 3: General information about the conventional farmers and their farms.

3.2.2. CSAF advantages

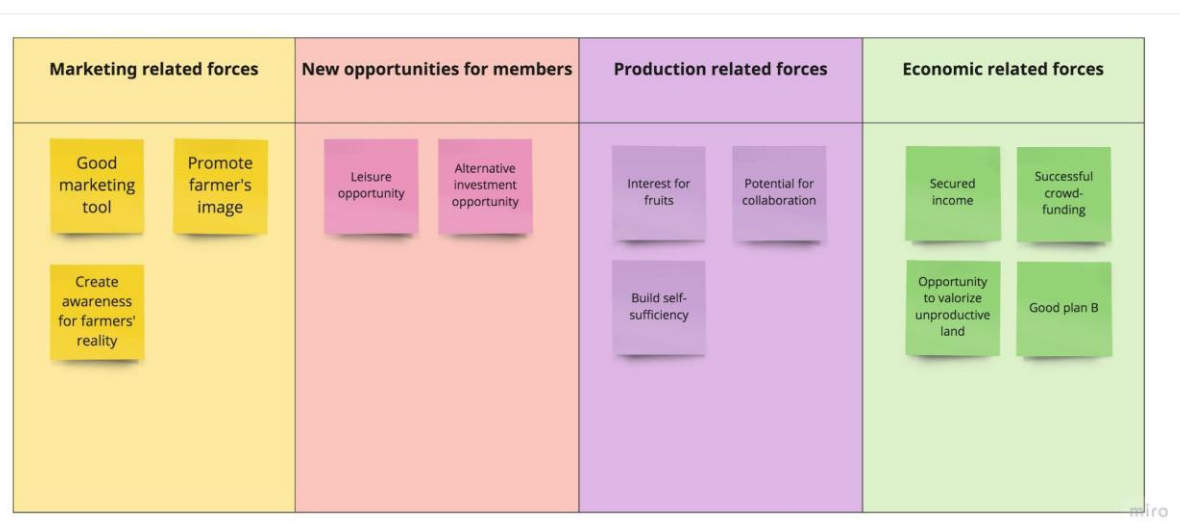


Figure 11: Advantages of the CSAF model perceived by Flemish farmers and organized following the subcategory they are part of.

3.2.2.1. Marketing related forces

The CSAF model was perceived as a potentially effective marketing strategy to draw people to the farm, improve the image of farmers, and bridge the gap between farming reality and consumers. Since many interviewed farmers already sold their produce directly on the farm, agroforestry practices and the CSAF model were viewed as compelling strategies for attracting new customers. Farmers recognized the importance of creating a captivating narrative aligned with customer values to maintain interest, and the CSAF model was seen as a valuable contribution in this regard. Additionally, customers' curiosity about product origins made the model a useful tool to meet this demand (Good marketing tool). Furthermore, the model was recognized as a tool to enhance the bond between farmers and CSA members. Firstly, by placing farmers at the core of such an organization, the CSAF model had the potential to elevate the perceived value and respectability of their work within the wider population (Promote farmers' image). Secondly, by fostering frequent interaction and cooperation, it was anticipated that members would gain a deeper understanding of agriculture and cultivate empathy towards the challenges faced by farmers (Create awareness for farmers' reality).

3.2.2.2. New opportunities for members

The CSAF concept was highlighted as a fresh opportunity for consumers to embrace the countryside and enjoy leisure time, while also serving as an alternative investment option for them. It was emphasized that members would undoubtedly appreciate the chance to stroll through the fields, savor fresh produce, and relax in a pleasant environment (Leisure opportunity). A farmer shared his observations of the CSA model in his neighborhood, describing it not just as a means to acquire food, but as an enriching experience. Engaging with farmers and the community, establishing direct contact with food were described as part of the experience. Moreover, the participatory investment structure of CSAF was described by different farmers as an alternative investment opportunity for members, providing a tangible way for them to contribute to the fight against climate change (Alternative investment opportunity). One of the interviewed farmers had previously considered selling shares to finance the planting of trees, pondering what other offerings could be provided in exchange, besides

"clean air" and a "beautiful landscape." In this context, the inclusion of fruits and the possibility of recreation were seen as intriguing avenues to explore.

3.2.2.3. Production related forces

In addition to meeting an existing demand, the CSAF could help strengthen the region's food self-sufficiency. Indeed, the existing consumer interest in local fruit was highlighted as a strong advantage of the CSAF (Interest in fruits). Many farmers with farm stores observed a significant demand for this product. They pointed out that while it had become easier to find local and organic vegetables in recent years, finding organic and local fruit remained challenging. This was particularly true for one farmer who desperately needed local organic fruits for his flavored dairy products. Consequently, he viewed the CSAF model as an opportunity. However, he didn't envision himself managing such a project but expressed interest in partnering with someone who could oversee the structure for him (Potential for collaboration). Another farmer emphasized that diversifying production through the CSAF could also contribute to strengthening the region's food self-sufficiency (Building self-sufficiency).

3.2.2.4. Economic related forces

In addition to providing a business opportunity that is better aligned with regional policies, farmers recognized that CSAF could serve as a less stressful source of income, a promising financing solution in their region, and a means to add value to previously unused land.

The annual payment structure was described as potentially less stressful compared to traditional channels, as long as it could attract enough members over the long term. The upfront payment on an annual basis was seen as advantageous in gaining more insight into the year's income. Organizing "sales" was also noted as less stressful since the responsibility for tasks like harvesting, storing, and even transporting the fruit would no longer rest solely on the farmers. Additionally, increasing the customer base instead of relying solely on wholesalers was viewed as a way to mitigate the risk of having no buyers at all, ensuring a more secure income (Secured income). Despite the lack of enthusiasm expressed for community investment, several farmers acknowledged the success of crowdfunding they had either experienced themselves or observed among fellow farmers in the region (Successful crowdfunding).

For some farmers, this type of organization was also seen as an opportunity to enhance areas that are challenging to mechanize, less fertile land, or spaces between parcels, thereby valorizing previously unproductive land. Lastly, in the specific context of Flanders, one farmer explained that this system could serve as an alternative business in case they needed to cease animal husbandry due to new nitrogen regulations, providing a backup plan (Good plan B).

3.2.3. CSAF disadvantages

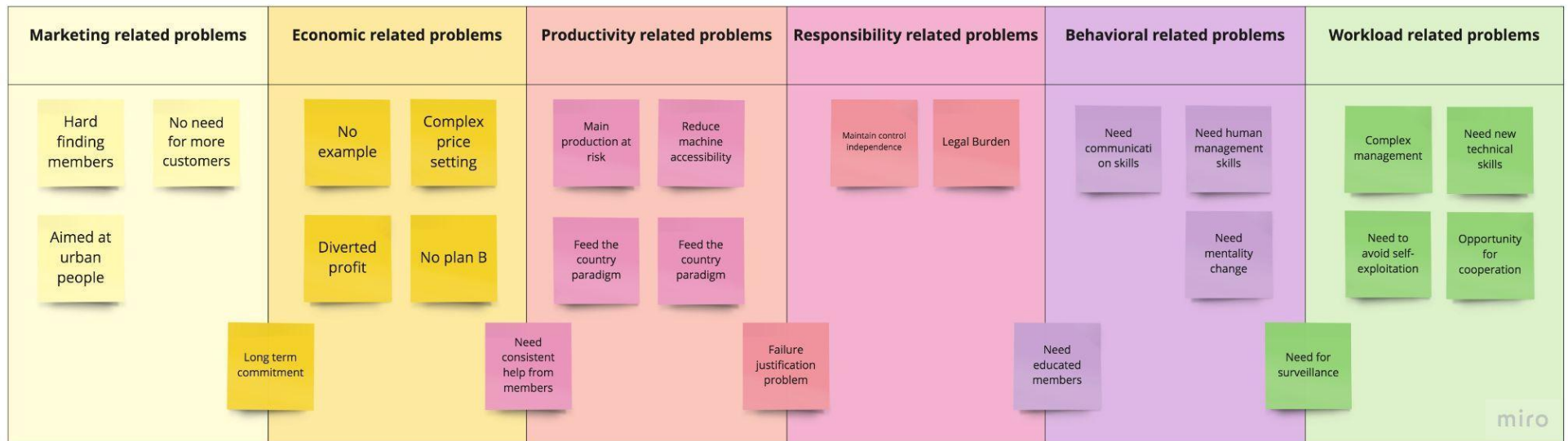


Figure 12: Disadvantages of the CSAF model perceived by Flemish farmers and organized following the subcategory they are part of. .

3.2.3.1. Marketing related problems

Finding enough members who are willing to invest time and money in the CSAF for several years was perceived as a particularly challenging task by several farmers. They believed that this system may not be appealing to a rural population while attracting more people to the farm was not described as a necessity.

Farmers expressed that it would be difficult to find members due to consumers' unfamiliarity with this type of system (Hard finding members). It was emphasized that it was not just about finding members, but rather finding a sufficient number of members to make the model viable. Drawing from their personal experience with their farm store customers, some farmers felt that it would be extremely challenging to gather a large group of individuals with enough time to engage in community activities and commit for many years (Long-term commitment).

Farmers also viewed regular CSA members as a specific consumer segment, representing only a small portion of the overall population and not enough to ensure an adequate number of participants. Furthermore, most farmers doubted the model's ability to attract individuals from their own villages. They explained that rural residents already had regular exposure to agriculture and nature, leading to a more closed mindset. Therefore, the farmers believed that this concept would not pique their interest. Instead, they saw more potential in urban dwellers who sought green spaces, possessed a high level of environmental awareness, and had sufficient financial resources (Aimed at urban people).

Although the CSAF model was regarded as an intriguing marketing tool for their farm shops, many farmers mentioned that they did not need to attract more customers since they were already struggling to meet existing demand. Therefore, implementing the CSAF model would entail additional work without the ability to fully satisfy and benefit from the increased demand (No need for more customers).

3.2.3.2. Economic related problems

Uncertainties surrounding profitability estimates, future share prices, and member commitment were described as too high for farmers to commit to a CSAF project. They also highlighted the lack of reversibility in the economic model and expressed concerns that it would benefit everyone except themselves.

The absence of examples to draw from was a major concern among many interviewees (Lack of examples). They expressed their reluctance to initiate such a project without realistic profitability estimates, as it would be considered a leap into the unknown. There were also doubts regarding the price setting for the yearly subscription, as it was deemed challenging to estimate the future production of a diverse range of fruit trees (Complex price setting). Overall, estimating the long-term benefits of an AFS with community support was considered highly uncertain.

Farmers also feared that committed members might lose motivation or interest after a few years, leading to a cessation of financial or physical support, leaving the farmer with all the work and no income (Long-term commitment). This argument raised another issue: the lack of reversibility in the business model (No plan B). Since the CSAF model's diversified fruit trees were intended for handpicking, the system was deemed unsuitable for mechanical harvesting. This posed a problem for some farmers because, in the worst-case scenario, the loss of the community would make it impossible to market the

fruit in other types of markets. Additionally, if farmers decided to remove the trees before the ten-year mark, they would be required to repay the received subsidies. Lastly, with the presence of a social manager to assist the farmer, the question of where the profits truly go arose (Diverted profit). Some farmers expressed regret that the success of alternative food networks, which often begin with good intentions, often ends up negatively impacting the farmers, who are left with increased workload.

3.2.3.3. Productivity related problems

The presence of trees and the passage of members through the fields gave rise to concerns about reduced crop yields and decreased tractor mobility, which could adversely affect farm productivity. Farmers primarily analyzed productivity in terms of food production, with less emphasis on services sold. Consequently, occasional help from members was considered unsuitable.

For the majority of the interviewed farmers, the implementation of the CSAF model posed a risk to their farm productivity. On one hand, there were concerns regarding the impact of trees, such as their shading effect on crops or the loss of arable land. On the other hand, farmers feared that members walking between fields could trample nearby crops, putting the main production at risk (Main production at risk). The presence of trees was also frequently cited as a factor hindering tractor mobility and potentially causing damage to machinery (Reduced machine accessibility). Additionally, the CSAF model was criticized for not being a productive element in terms of agricultural production, but rather seen as a means to enhance their public image (Feeding the country paradigm).

Another aspect related to productivity was the necessity of consistent help from members to maintain the system (Need consistent help from members). Some farmers expressed their preference for regular and predictable assistance rather than sporadic help, as the latter would require constant explanations of tasks and ultimately slow down work completion. They wanted ongoing support that would enable them to organize their work efficiently, rather than one-time assistance.

3.2.3.4. Responsibility related problems

The farmers interviewed expressed a reluctance to share decision-making power on their farms as they preferred to take full responsibility for their own mistakes. They were also hesitant to assume the responsibility for potential accidents involving members on the farm.

The idea of integrating consumers into the farm organization was not well-received by the farmers. Some mentioned their desire to maintain complete control and independence over their farms and the practices implemented (Maintain control independence). This was also linked to their fear of having to justify themselves to outsiders in case of failure, such as a decrease in production (Failure justification problem). Furthermore, all the farmers interviewed leased their land. Consequently, they believed it would be challenging to implement agroforestry on leased land as the decision would require the approval and cooperation of the landowner (Legal burden). Another legal concern raised was the liability of the farmer in such an organization, as the risk of accidents was considered significant when members were asked to pick fruit directly from trees in the middle of fields.

3.2.3.5. Behavioral and mentality related problems

Farmers mentioned issues related to potentially disruptive behaviors by members during farm visits, as well as a lack of skills to effectively monitor and address these behaviors. Additionally, it was suggested that changing consumer and farmer mindsets would be crucial for the success of the CSAF model.

Potentially problematic member behaviors included acts of incivility such as littering the property, engaging in unsafe interactions with animals, or intrusive visits that infringed upon farmers' privacy. These situations were described by surveyed farmers based on their own experiences. Another concern was the idealized expectations of members, leading to worries that they might be disappointed by the fruit quality and the effort required for both harvesting and volunteer work to support the community. These situations stemmed from consumers' supposed lack of knowledge about the realities of agriculture, emphasizing the importance of educating members prior to joining the community to ensure its success (Need educated members).

Most farmers also expressed the need for specific skills to manage such a structure. Communication was highlighted as a critical skill (Need communication skills). Transparent communication was considered essential to attract and persuade individuals to invest their time and money in the structure. Capital investors were described as demanding in terms of follow-up and the quality of information provided. Another important skill mentioned was human resource management (Need human management skills). Effectively managing individuals for the benefit of the community was acknowledged as challenging but vital for undertaking such a project. Moreover, among farmers who had experienced or observed successful crowdfunding campaigns, none were inclined to replicate the experience due to personal reasons and the discomfort associated with seeking financial support.

Finally, in a broader context, various farmers emphasized the need to adapt the mentalities of both consumers and farmers to make such a project feasible (Need mentality change). One farmer suggested that building familiarity with the concept from an early age was crucial, proposing the establishment of connections with schools or youth organizations as a starting point for such projects.

3.2.3.6. Workload related problems

The amount and complexity of work required by the CSAF model were cited as arguments against its implementation, with concerns about potential farmer burnout.

The complexity of the model made farmers hesitant to adopt it on their farms. Tasks such as tree maintenance, member management, adherence to tree-related regulations, optimizing crop combinations, and financial planning were perceived as significant challenges (Complex management). Moreover, one farmer pointed out that a certain level of expertise was required to handle these tasks, which was scarce in the agricultural sector, both among older and younger farmers, due to the lack of inclusion in agricultural curricula (Need new technical skills).

Surveillance was also a concern voiced by several farmers. They acknowledged the need to monitor access to the site to prevent member misconduct and theft, but deemed it impractical (Need for surveillance). To alleviate this constraint, one proposed solution was to organize dedicated harvesting days. Furthermore, the majority of farmers already had heavy workloads and were reluctant to increase

them, risking their health and potential burnout (Need to avoid self-exploitation). In a broader sense, to mitigate the additional workload associated with the CSAF model, one farmer proposed collaborating with an individual who would assume responsibility for the project at all levels, presenting an opportunity for cooperation (Opportunity for cooperation).

4. Discussion

In the following section the results from the feasibility analysis are discussed. Some results from the reconnaissance round are also discussed in order to justify the relevance of the CSAF model and to create a link with the feasibility analysis. The discussion was organized following the same analysis frame used all along this work, namely following the agronomic and environmental, the social and the economic aspects. Finally, the methodological strengths and limits of this work are discussed as well.

4.1. Agronomic and environmental aspects

One of the agronomic principles of the CSAF model was based on the diversification of products through the production of fruits to improve the farm resiliency. The results of the feasibility analysis showed that conventional farmers partly agreed with this aspect as they noticed the strong interest from consumers for local fruits. This idea was also supported by CSA farmers while Galt et al. (2019) found corroborating results that showed that the presence of fruits in CSA shares had a positive effect on members retention rate over the years (Galt et al., 2019). However, some conventional farmers did not recognize this fruit production as a relevant food production element but only as a marketing tool or a leisure activity for consumers. This refers to the “feeding the country paradigm”, as presented by Lojka et al. (2022) where farmers consider themselves as food and fodder producers and do not consider the trees as a real source of food that can feed the population (Lojka et al., 2022). This was well expressed by one of the interviewed conventional farmer:

"You would lose way too much space. We need to produce food. We should call a spade a spade."

Interviewed CSA farmers voiced not having enough space to implement agroforestry practices in combination with a profitable vegetable production. Therefore, the CSAF model was designed for arable and/or livestock farms in Flanders as these farms have considerably more hectares in production than the interviewed CSA farms (Van Bogaert et al., 2021). However, the results from the feasibility analysis show that the loss of production space, the reduced machine accessibility and the potential negative impact on yield were also considered as a major problem by conventional farmers. A similar result was found in several other studies (Béral et al., 2020; Ehret et al., 2015; Moreau et al., 2020). Conventional farmers as well as CSA farmers also mentioned the need to develop new skills in order to manage the increased agronomic complexity of this type of system which is supported by research addressing agroforestry barriers (García de Jalón et al., 2018a; Hernández-Morcillo et al., 2018; Lojka et al., 2022; Rois Díaz, 2022; Rolo et al., 2020).

The main aim of the CSAF model regarding environmental aspects is to increase the biodiversity on farmland through buffer zones which would benefit a wide range of wild animals and beneficial organisms. While the self-harvest possibility introduces members to seasonal and local diets in order to reduce food transport and food packaging. These environmental objectives of the CSAF model were

justified by the fact that CSA farmers and CSA members mentioned being motivated by these aspects in the reconnaissance round. Furthermore, they were also justified by the environmental improvements that need to be achieved on these aspects in Flanders. Indeed, most Flemish farmlands have poor biodiversity richness and only around 1% of produce is sold directly on farms (Avermaete, 2022; Demolder et al., 2014; Van Bogaert et al., 2021). However, none of the conventional farmers directly commented on these aspects showing that the environmental impact was not a priority for them. As Garcia de Jalon et al. (2018) found that biodiversity was one of the key motivational drivers of European farmers who implemented agroforestry, the absence of reaction by the interviewed farmers can partly explain their low motivation for the CSAF model (García de Jalón et al., 2018a). This default reasoning might not be academically valid but at least it delivers an interesting guideline regarding the type of farmers that should first be targeted to try the CSAF model in future.

Based on the results from the reconnaissance round, the self-harvest aspect of the CSAF project was thought to save farmers in labor related to harvest and the distribution of fruits. However, conventional farmers were not receptive to the argument as they considered trees would need a lot of care. This concern for additional labor due to tree management in an agroforestry system seems justified as it is widely recognized in the literature (García de Jalón et al., 2018b; Graves et al., 2017; Rois-Díaz et al., 2018; Rolo et al., 2020). In addition, inconsistent help from members was considered by conventional farmers as more detrimental than positive for their organization as it would require even more time and energy to manage the customers. This result echoes the high workload mentioned by CSA farmers in the reconnaissance round and the problem of self-exploitation in CSA farms as referred to in the literature (Galt, 2013; Mert-Cakal and Miele, 2020). It is also widely recognized that farmers generally work many more hours than wage earners. In Flanders, an independent entrepreneur in the agricultural sector works on average 66 hours a week and takes only 8 days off every year (Van Bogaert et al., 2021). This data supports how difficult it is for farmers to add new activities without causing further deterioration of their working conditions. This point was exemplified by a statement made by one of the conventional farmers:

"You can develop whatever you want and work as much as possible to make it work but at some point you need to find the time to rest."

4.2. Social aspects

In the reconnaissance round, results show that CSA members enjoy the self-harvest model as it offers them an opportunity to relax after work. This option also refers to what Rouquet and Paché mention as the recreational model in the "pick-up-your-own-farm" model which is very similar to the self-harvest CSA model (Rouquet and Paché, 2017). This combined possibility to access fresh fruits and a new recreational experience is also referred to as the "Experience economy" (Pine and Gilmore, 2011). Conventional farmers had a positive perspective on the leisure opportunity that the self-harvesting of fruits in the CSAF model could represent for consumers. However, they did not believe that it would attract the rural population living around their farms. They thought urban consumers should be targeted first in this model. This perception from conventional farmers is supported by different studies which pictured the typical CSA member as a person living in urban or peri-urban areas (Cechin et al., 2021; Ernst, 2017; Humphrey, 2017; Hvitsand, 2016; Medici et al., 2021). This is also well expressed by one of the conventional farmers in the following statement:

"Some people would be interested but maybe not a lot of people from our village because they are not really open minded. People from Brussel or people with a bigger interest for the environment would certainly come."

The self-harvest activity was well perceived, however the open access on farmland didn't collect much adhesion from the interviewed conventional farmers because they feared for destructive and dangerous behavior from members and theft from strangers. Vandalism or theft is a problem that didn't appear in the reconnaissance round but which is documented as an important challenge in the literature on self-harvest gardens (Gauder et al., 2017). But interviewed CSA farmers clearly mentioned the fact that managing members was a very demanding task in terms of organization and follow-up while conventional farmers mentioned the need to have educated members to avoid these problems. These findings resonate with Shortly and Kepe's study which investigated problematic behaviors linked to foraging in urban green spaces (Shortly and Kepe, 2021). These problems were clearly highlighted by a respondent:

"People need to understand how exactly it works and to respect your farm. We had a bad experience during the covid period. We opened a path across our fields but we had to clean it up after a few weeks because people were just throwing all types of waste during their walks."

Further than educated consumers, the feasibility of the CSAF model was also, following different the interviewed conventional farmers, conditioned by the need for larger mentality change among farmers. Accepting and transitioning towards new organizational structures and business models, was described as a very slow process. This refers to the notion of "inner sustainability" mentioned by Bakker et al. (2023) which underlines the lack of account for "psychological, psychosocial and behavioral factors" in transition processes toward sustainable farming practices (Bakker et al., 2023). On the other hand, CSA farmers demonstrated that they had undergone the above mentioned mental shift as they clearly expressed their willingness to challenge the mainstream food system through their involvement in a CSA structure, which is also well-documented in the literature (Hvitsand, 2016; Morgan et al., 2018; Samoggia et al., 2019). The next quote from the feasibility analysis interviews expressed well the "inner aspects" required for conventional farmers to enter a transformational process:

"The farmer who will start this tomorrow, is already in an alternative dynamic today. It's the same with the transition towards organic practices. 90% of the transition takes place in the head of the farmer. A conventional farmer would not do something like that."

The CSAF model was also thought to create a space where consumers and farmers can collaborate and build a strong community feeling. The reaction of conventional farmers to this aspect was both positive and negative. Positive because they highlighted the positive effect that it could have on consumers' awareness of farmer's reality and as such increase their willingness to support local producers as also reported in the literature (Hayden and Buck, 2012; Humphrey, 2017). And negative as they mentioned the need to develop good communication skills and human management skills to facilitate these types of spaces (Hayden and Buck, 2012; Willis, 2012). Furthermore, the benefits of trees to improve farmers' image is presented by the literature as a small source of motivation to implement agroforestry (García de Jalón et al., 2018b; Rois-Díaz et al., 2018). This supports, regardless of the benefits for their image, that this was not enough to motivate conventional farmers to adopt agroforestry practices.

In order to deal with the complexity of the system, it was suggested in the interviews to collaborate with one person who would be fully responsible for the CSAF project, from the management of the trees to the management of the community as well as through financial commitments. This proposal differs from the social manager presented in the CSAF model because the transfer of responsibility is more radical. In the CSAF model, the social manager was mainly responsible to manage the community and maybe help the main farmer to maintain the trees, while the main farmer would retain full control over his fields and practices. Similar collaborative structures exist and have been studied in the Midwest of

the USA by Keeley et al. and are referred to as "multi-party agroforestry" (Keeley et al., 2019). If this type of collaboration represents an interesting model to reduce the barriers related to the increased complexity of the agroforestry system and the lack of skills, the legal burdens around leased land were described as a complex issue by conventional farmers. Furthermore, the regulations governing tenancy rights include rules from different levels of governance, namely regional, national and EU levels. As a result, legal solutions are not easily transferable between different countries or administrative regions (Maus de Rolley, 2014).

4.3. Economic aspects

The structure ownership of the CSAF model is aimed to be organized under the cooperative model in order to share the capital investments with the members. Conventional farmers agreed that it could be helpful to overcome the barrier link to the initial investment which was identified in the literature as well as by the interviewed CSA farmers (Eichhorn et al., 2006; Palma et al., 2007; Rois Díaz, 2022; Sollen-Norrlin et al., 2020). Regarding the potential success of this type of financing, contradictory results were obtained. On the one hand, farmers feared that they wouldn't find enough investors to finance the structure in the long term, but on the other hand, they recognized that crowdfunding were working well in their regions. Similar results were observed for CSA farms yet the literature mainly highlights the difficulty of finding enough capital investors to finance this type of agricultural project (Borremans, 2019). Also, some farmers didn't feel comfortable asking the surrounding community for financial "help," even though they thought it would be a nice alternative investment opportunity for them. This echoes with the 'close-culture' that characterizes the traditional farming sector (Messely et al., 2020). The following statement from a conventional farmer interviewed exemplifies the "close culture" aspect quite well:

"Organizing the crowdfunding was horrible. I think it is linked to my personality. I don't like to ask for help."

Building mutual trust and forming a community who would be ready to buy and pay the fair prices for other products produced on the farm is also an objective behind the CSAF model. Conventional farmers recognized that it would be a nice marketing tool to attract more customers to their farm shop. This is in line with the study of Brehm and Eisenhauer which state that individual attachment to the CSA structures increases members willingness to pay (Brehm and Eisenhauer, 2008). But a lot of the conventional farmers considered that it was not useful in their particular case as they had trouble to answer the current demand already.

Conventional farmers perceived the annual membership fee as an up-front payment in the CSAF model to be less stressful, as it facilitated the marketing of fruit production and offered insights into the anticipated revenue for the year. This perspective was shared by the interviewed CSA farmers as well. This finding is aligned with the benefits of the up-front payment presented in the literature about CSA farms (Hvitsand, 2016; Samoggia et al., 2019). However, the pricing of the membership was considered complex by the conventional farmers, something that was also mentioned in the CSA literature, but did not appear in the reconnaissance round (Ernst, 2017).

Also, the lack of reversibility of this model was perceived as a problem by most conventional farmers because they thought no other viable economic model would be applicable in a case where the CSAF would not be successful. This lack of flexibility linked to agroforestry systems is well referenced in the literature (Borek and Gałczyńska, 2018; Graves et al., 2017; Kay et al., 2019; Sollen-Norrlin et al.,

2020). Furthermore, the absence of a reference point from which to draw inspiration was viewed as a concern by farmers who were hesitant to engage in a system without clear indications of its profitability. They were reluctant to be part of an experimental process and instead sought to implement practices that have been proven to work, as evidenced by the literature addressing the barriers to the implementation of agroforestry systems (Graves et al., 2017). It was also well expressed by one of the interviewed conventional farmer:

"If there is a profitable business model then we are interested. How it has to be organized is less important from the moment you can live decently from it, but we need to be sure that it works."

4.4. Methodological strengths and limitations

To understand the origin of the limitations of this work, it is important to first specify the motivations behind it. Being very interested in entrepreneurship in general, I wanted to use a creative and field-based approach to solve a problem that I found interesting, namely the difficulty of implementing agroforestry in Europe. From then on, my main motivation in writing this thesis was not to analyze existing phenomena, but to propose a concrete solution to a known problematic situation. Therefore, I wanted to make this thesis an attempt to academicize a creative process. It is in this context that I initiated this thesis.

My firm intention was to conduct field research based on empirical data. Therefore, I decided to take an inductive approach, but quickly, without realizing it, driven by my creative will, I switched to a deductive approach. More specifically, the reconnaissance round should have led to general principles aimed, for example, at facilitating cooperation between farmers and consumers to support agroforestry projects. These principles should then have been discussed in relation to the literature according to an inductive method (Azungah, 2018; Fardet et al., 2023). Instead, I directly used the trends observed in my interviews to create a concrete model that was then tested in the feasibility analysis. This second phase can be identified as a deductive approach (Azungah, 2018; Fardet et al., 2023). However, I did not base my model sufficiently on scientifically validated theories to justify my experiment. This methodological error rendered my inductive approach incomplete, since I didn't isolate and discuss any general principles at the end of the reconnaissance round. But it also rendered the deductive approach unfounded, since it was not based on scientifically verified principles. Thus, it could be said that this work followed two different but incomplete approaches. Fortunately, during the discussion, I made an effort to trace the link between the results of the feasibility analysis with the CSAF model and its constitutive elements from the reconnaissance round. As a result, I was able to discuss all the results with the academic literature. Furthermore, it should be considered that this work is strongly grounded in reality, thanks to the two different cycles of data generation that took place on farms and contributed to make this work more accessible to the farmers. Further development of this work, or at least its strategy, could quickly provide farmers with concrete solutions to the many challenges they are currently facing.

Besides macro-methodological problems, I must also mention some micro-methodological limitations. Firstly, the semi-structured interview method used in this thesis enabled me to discover and collect very rich testimonies from CSA members, CSA farmers and conventional farmers in Flanders. Although my knowledge of the topic enabled me to have a rich exchange with the interviewees, it cannot be ruled out that I may have biased some of their answers or over-interpreted others. Secondly, the analysis of these

data was undoubtedly also influenced by my knowledge, preferences and personal thought patterns, so that the results obtained differ from what another researcher would have found. In addition, the interviews were not transcribed in their entirety. Only the meaning units that I considered valuable were included in the matrix, which was naturally prone to subjectivity.

Moreover, the method used to select the characteristics of the CSAF model has its limits. The data from the reconnaissance round combined with my own reflections led to the creation of this model. The choices that I made to create this model were not made because there were no other possibilities, but simply because, until proof of the opposite, they could be considered valid. This allows me to say that this model could have taken an infinite number of different forms, but the analysis of the results obtained in the field, my background of knowledge on the subject and the framework in which this thesis took place led me to conceptualize the CSAF model.

In addition, the themes from the reconnaissance round and from the feasibility analysis could be further refined to better represent the data generated during the interviews. Conversely, it is also clear that the number of categories could have been increased to match the richness of the data, but it was important to maintain an acceptable level of complexity to keep the picture understandable for both the researcher and the reader. This was particularly important in a thesis work that aimed to provide a concrete solution for farmers.

Finally, while this thesis has taken a more unconventional academic approach, it has tried to bring agricultural research closer to farmers. Although no concrete solutions can be derived from this work, the process itself has been a valuable learning experience for me. Personally, it has prompted me to question the way I organize my work, and practically, it has provided insights from the numerous farms I have visited. Moreover, I have gained a deeper understanding of the nature of academic research in the social sciences. This process has also provided conventional farmers with an opportunity to reflect openly about the possibility of collaborating with the local community to support their future projects and contribute to the advocacy of their cause.

5. Conclusion

The main objective of this work was to understand the potential of CSA structures to support the implementation of agroforestry systems. This was realized through two rounds of interviews inspired by the principles of the Grounded Theory because it is a qualitative research method that uses an inductive and a systemic approach which offers flexibility to dive into the rich data and bring-up new concepts (Charmaz, 2006; Hussein et al., 2014; Mortelmans, 2007). CSA farmers and CSA members were first interviewed in the reconnaissance round in order to highlight the possible strengths and constraints of a synergy between CSA structures and agroforestry. This first step resulted in the development of the Community Supported Agroforestry (CSAF) model based on the interviews. This model was then tested in a second step through a feasibility analysis where nine Flemish conventional farmers shared their perceptions about it.

The results indicate that the CSAF model has not found much adhesion among conventional farmers. The main identified barriers, included: increased system complexity, increased workload, additional responsibilities, productivity loss on the main crops, and feared lack of commitment and interest from members. Despite these limitations, discussions with conventional farmers have also highlighted potential positive contributions, including the potential for cooperation in the management of trees,

opportunities for shared capital investment, improving the image of farmers, and increasing consumer awareness of the reality of farming. The analysis of these results offers new avenues for reflection.

One promising pathway that emerges from the discussions is the concept of a multi-party agroforestry model, whereby farmers could collaborate with other individuals or groups to manage the trees on their land while continuing to produce in the interspaces (Keeley et al., 2019). However, the lack of clarity surrounding the liabilities of each party currently complicates the establishment of such associations. By clarifying the legislation, on the regional, national and European levels, and by promoting this type of partnership, some of the limitations of the CSAF model could be mitigated. This would open up numerous opportunities for creative entrepreneurs and community initiatives to develop business models that capitalize on trees. The aim should be to create synergies between players from alternative food networks with players from the traditional food system, and no longer create an opposition between one and the other (Lamine, 2012). As such, future research could focus on the legal aspects of land tenure in the context of multi-party agroforestry practices, as well as the success factors of cooperation between alternative food networks and conventional farmers. Such research could help promote and support future projects.

Another point that presents potential for future development of CSA structures on conventional farms is the need for mentality change among farmers. While farm productivity remains crucial in farmer's regard to ensure the economic viability of their farms, it is worth questioning whether the emphasis on performance should gradually give way to a culture of resilience (Grumbach and Hamant, 2020). Resilience is essential in our food system but also at the levels of our lives and societies to withstand the shocks and challenges that confront us. Europe, despite its advancements in democracy, technology, and social development, is not immune to the major disruptions posed by climate change. Without causing a brutal shift in our society's organization, strengthening the bond between consumers, farmers, and the wider community through CSA structures centered around trees, or other sustainable types of farming, could be a potential first step toward enhancing the agronomic, environmental, social and economic resilience of rural areas. Furthermore, the proliferation of grassroots initiatives at the local level can exert socio-political influence to drive transformative change towards greater resilience on regional, national and even continental level while placing farmers at the center of future resilient societies.

In summary, this research highlights the challenges encountered in implementing the CSAF model among conventional farmers. By addressing legal ambiguities and fostering partnerships with conventional farmers, CSA structures could further help the development of agroforestry systems. Ultimately, a shift towards a culture of resilience, could also help farmers to engage with agroforestry and community initiatives, with the potential of enhancing the sustainability of our society as a whole.

6. Bibliography

- Augère-Granier, M.-L., 2020. Agroforestry in the European Union.
- Avermaete, T., 2022. Voeding en landbouw: een gezonde toekomst voor burger en boer 157–179.
- Azungah, T., 2018. Qualitative research: deductive and inductive approaches to data analysis. *QRJ* 18, 383–400. <https://doi.org/10.1108/QRJ-D-18-00035>
- Bakker, E., Hassink, J., van Veluw, K., 2023. The ‘inner’ dimension of Dutch farmers’ trajectories of change: drivers, triggers and turning points for sustained agroecological practices. *Agroecology and Sustainable Food Systems* 47, 687–717. <https://doi.org/10.1080/21683565.2023.2180563>
- Béral, C., Andueza, D., Ginane, C., Bernard, M., Liagre, F., Girardin, N., Emile, J.C., Novak, S., Grandgirard, D., Deiss, V., Bizeray-Filoché, D., Moreau, J.C., Pottier, E., 2020. PARASOL: AGROFORESTERIE EN SYSTÈME D’ÉLEVAGE OVIN - Étude de son potentiel dans le cadre de l’adaptation au changement climatique 159.
- Blanc, S., Gasol, C.M., Martínez-Blanco, J., Muñoz, P., Coello, J., Casals, P., Mosso, A., Brun, F., 2019. Economic profitability of agroforestry in nitrate vulnerable zones in Catalonia (NE Spain). *Span J Agric Res* 17, e0101. <https://doi.org/10.5424/sjar/2019171-12118>
- Borek, R., Gałczyńska, M., 2018. Identifying bottlenecks and gateways for agroforestry development in Poland. *Proceedings of the 4th European Agroforestry Conference, Agroforestry as Sustainable Land Use*, 28-30 May 2018, Nijmegen, The Netherlands 532–536.
- Borremans, L., 2019. The development of agroforestry systems in Flanders. A farming systems research approach to social, institutional and economic inquiry.
- Borremans, L., Marchand, F., Visser, M., Wauters, E., 2018. Nurturing agroforestry systems in Flanders: Analysis from an agricultural innovation systems perspective. *Agricultural Systems* 162, 205–219. <https://doi.org/10.1016/j.agsy.2018.01.004>
- Borremans, L., Reubens, B., Van Gils, B., Baeyens, D., Vandeveld, C., Wauters, E., 2016. A sociopsychological analysis of agroforestry adoption in Flanders: understanding the discrepancy between conceptual opportunities and actual implementation. *Agroecology and Sustainable Food Systems* 40, 1008–1036. <https://doi.org/10.1080/21683565.2016.1204643>
- Brehm, J.M., Eisenhauer, B.W., 2008. Motivations for Participating in Community-Supported Agriculture and Their Relationship with Community Attachment and Social Capital 23, 23.
- Burgess, P.J., Morris, J., 2009. Agricultural technology and land use futures: The UK case. *Land Use Policy*, *Land Use Futures* 26, S222–S229. <https://doi.org/10.1016/j.landusepol.2009.08.029>
- Cechin, A., da Silva Araújo, V., Amand, L., 2021. Exploring the synergy between Community Supported Agriculture and agroforestry: Institutional innovation from smallholders in a brazilian rural settlement. *Journal of Rural Studies* 81, 246–258. <https://doi.org/10.1016/j.jrurstud.2020.10.031>
- Charmaz, K., 2006. *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*. SAGE.
- CSA-netwerk Vlaanderen, 2018. CSA Conferentie 2018.
- Dedeurwaerdere, T., De Schutter, O., Hudon, M., Mathijs, E., Annaert, B., Avermaete, T., Bleeckx, T., de Callatay, C., De Snijder, P., Fernández-Wulff, P., Joachain, H., Vivero, J.-L., 2017. The Governance Features of Social Enterprise and Social Network Activities of Collective Food Buying Groups. *Ecological Economics* 140, 123–135. <https://doi.org/10.1016/j.ecolecon.2017.04.018>
- Demolder, H., Schneiders, A., Spanhove, T., Maes, D., Landuyt, W.V., Adriaens, T., 2014. Hoofdstuk 4 – Toestand biodiversiteit.
- den Herder, M., Moreno, G., Mosquera-Losada, R.M., Palma, J.H.N., Sidiropoulou, A., Santiago Freijanes, J.J., Crous-Duran, J., Paulo, J.A., Tomé, M., Pantera, A., Papanastasis, V.P., Mantzanas, K., Pachana, P., Papadopoulos, A., Plieninger, T., Burgess, P.J., 2017. Current extent and stratification of agroforestry in the European Union. <https://doi.org/10.1016/j.agee.2017.03.005>
- Directorate-General for Communication, 2021. Delivering the European Green Deal [WWW Document]. European Commission. URL <https://commission.europa.eu/strategy-and->

- policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en (accessed 2.9.23).
- Directorate-General for Environment, 2023a. Biodiversity strategy for 2030 [WWW Document]. European Commission. URL https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030_en (accessed 2.9.23).
- Directorate-General for Environment, 2023b. Forest strategy [WWW Document]. European Commission. URL https://environment.ec.europa.eu/strategy/forest-strategy_en (accessed 2.9.23).
- Directorate-General for Environment, 2020. The 3 Billion Trees Pledge [WWW Document]. European Commission. URL https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030/3-billion-trees_en (accessed 4.8.23).
- Directorate-General for Health and Food Safety, 2023. Farm to Fork Strategy [WWW Document]. European Commission. URL https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en (accessed 2.9.23).
- Donham, J., Venn, R., Schmutz, U., Migliorini, P., 2021. Global inventory of current policy contexts, instruments and operational means for the support of mixed farming and agroforestry systems.
- Ehret, M., Graß, R., Wachendorf, M., 2015. The effect of shade and shade material on white clover/perennial ryegrass mixtures for temperate agroforestry systems. *Agroforestry Systems* 89. <https://doi.org/10.1007/s10457-015-9791-0>
- Eichhorn, M.P., Paris, P., Herzog, F., Incoll, L.D., Liagre, F., Mantzanas, K., Mayus, M., Moreno, G., Papanastasis, V.P., Pilbeam, D.J., Pisanelli, A., Dupraz, C., 2006. Silvoarable Systems in Europe – Past, Present and Future Prospects. *Agroforest Syst* 67, 29–50. <https://doi.org/10.1007/s10457-005-1111-7>
- Ernst, M., 2017. Community Supported Agriculture 8.
- European Agroforestry Federation, 2020. EURAF Policy Briefing 2. Agroforestry in the EU Forest Strategy [WWW Document]. EURAF. URL https://docs.google.com/document/d/1dd0-pugx92iEzlsa3CwtmqN57NIEu-5Sr_reaoFXtJg/edit?usp=embed_facebook (accessed 2.10.23).
- European Environment Agency, 2023. Biodiversity: Three billion additional trees by 2030 – launch of MapMyTree tool — European Environment Agency [WWW Document]. URL <https://www.eea.europa.eu/highlights/mapmytree-new-data-tool-to> (accessed 2.10.23).
- Eurostat, 2023. Statistics | Eurostat [WWW Document]. URL <https://ec.europa.eu/eurostat/databrowser/view/tps00003/default/map?lang=en> (accessed 4.26.23).
- Fardet, A., Lebretonchel, L., Rock, E., 2023. Empirico-inductive and/or hypothetico-deductive methods in food science and nutrition research: which one to favor for a better global health? *Critical Reviews in Food Science and Nutrition* 63, 2480–2493. <https://doi.org/10.1080/10408398.2021.1976101>
- Galt, R.E., 2013. The Moral Economy Is a Double-edged Sword: Explaining Farmers’ Earnings and Self-exploitation in Community-Supported Agriculture: The Moral Economy Is a Double-edged Sword. *Economic Geography* 89, 341–365. <https://doi.org/10.1111/ecge.12015>
- Galt, R.E., Beckett, J., Hiner, C.C., O’Sullivan, L., 2011. Community Supported Agriculture (CSA) in and around California’s Central Valley: 43.
- Galt, R.E., Van Soelen Kim, J., Munden-Dixon, K., Christensen, L.O., Bradley, K., 2019. Retaining Members of Community Supported Agriculture (CSA) in California for Economic Sustainability: What Characteristics Affect Retention Rates? *Sustainability* 11, 2489. <https://doi.org/10.3390/su11092489>
- García de Jalón, S., Burgess, P.J., Graves, A., Moreno, G., McAdam, J., Pottier, E., Novak, S., Bondesan, V., Mosquera-Losada, R., Crous-Durán, J., Palma, J.H.N., Paulo, J.A., Oliveira, T.S., Cirou, E., Hannachi, Y., Pantera, A., Wartelle, R., Kay, S., Malignier, N., Van Lerberghe, P., Tsonkova, P., Mirck, J., Rois, M., Kongsted, A.G., Thenail, C., Luske, B., Berg, S., Gosme, M., Vityi, A., 2018a. How is agroforestry perceived in Europe? An assessment of positive and negative aspects by stakeholders. *Agroforest Syst* 92, 829–848. <https://doi.org/10.1007/s10457-017-0116-3>

- García de Jalón, S., Graves, A., Palma, J.H.N., Williams, A., Upson, M., Burgess, P.J., 2018b. Modelling and valuing the environmental impacts of arable, forestry and agroforestry systems: a case study. *Agroforest Syst* 92, 1059–1073. <https://doi.org/10.1007/s10457-017-0128-z>
- Gauder, M., Hagel, H., Gollmann, N., Stängle, J., Doluschitz, R., Claupein, W., 2017. Motivation and background of participants and providers of self-harvest gardens in Germany. *Renewable Agriculture and Food Systems*.
- Glaser, B., Strauss, A., 1967. Glaser, B. and Strauss, A., 1967. Grounded theory: The discovery of grounded theory. *Sociology the journal of the British sociological association*, 12(1), pp.27–49. *Sociology the journal of the British sociological association* 12, 27–49.
- Gliessman, S.R., Mendez, E.V., Bacon, C.M., Cohen, R. (Eds.), 2015. *Agroecology: A Transdisciplinary, Participatory and Action-oriented Approach*. CRC Press, Boca Raton. <https://doi.org/10.1201/b19500>
- Graneheim, U.H., Lundman, B., 2004. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today* 24, 105–112. <https://doi.org/10.1016/j.nedt.2003.10.001>
- Graves, A., Burgess, P., Liagre, F., Dupraz, C., 2017. Farmer perception of benefits, constraints and opportunities for silvoarable systems: Preliminary insights from Bedfordshire, England. *Outlook Agric* 46, 74–83. <https://doi.org/10.1177/0030727017691173>
- Grumbach, S., Hamant, O., 2020. How humans may co-exist with Earth? The case for suboptimal systems. *Anthropocene* 30, 100245. <https://doi.org/10.1016/j.ancene.2020.100245>
- Hayden, J., Buck, D., 2012. Doing community supported agriculture: Tactile space, affect and effects of membership 10.
- Hernández-Morcillo, M., Burgess, P., Mirck, J., Pantera, A., Plieninger, T., 2018. Scanning agroforestry-based solutions for climate change mitigation and adaptation in Europe. *Environmental Science & Policy* 80, 44–52. <https://doi.org/10.1016/j.envsci.2017.11.013>
- Herzog, F., 1998. Streuobst: a traditional agroforestry system as a model for agroforestry development in temperate Europe 20.
- Humphrey, I.M., 2017. What is the potential of Community Supported Agriculture to promote resilience and contribute to transition in the UK? University of Sheffield (Department of Geography).
- Hussein, M., Hirst, S., Salyers, V., Osuji, J., 2014. Using Grounded Theory as a Method of Inquiry: Advantages and Disadvantages. *TQR*. <https://doi.org/10.46743/2160-3715/2014.1209>
- Hvitsand, C., 2016. Community supported agriculture (CSA) as a transformational act—distinct values and multiple motivations among farmers and consumers. *Agroecology and Sustainable Food Systems* 40, 333–351. <https://doi.org/10.1080/21683565.2015.1136720>
- IPES-Food, 2016. From uniformity to diversity: A paradigm shift from industrial agriculture to diversified agroecological systems.
- Kay, S., Rega, C., Moreno, G., den Herder, M., Palma, J.H.N., Borek, R., Crous-Duran, J., Freese, D., Giannitsopoulos, M., Graves, A., Jäger, M., Lamersdorf, N., Memedemin, D., Mosquera-Losada, R., Pantera, A., Paracchini, M.L., Paris, P., Roces-Díaz, J.V., Rolo, V., Rosati, A., Sandor, M., Smith, J., Szerencsits, E., Varga, A., Viaud, V., Wawer, R., Burgess, P.J., Herzog, F., 2019. Agroforestry creates carbon sinks whilst enhancing the environment in agricultural landscapes in Europe. *Land Use Policy* 83, 581–593. <https://doi.org/10.1016/j.landusepol.2019.02.025>
- Keeley, K.O., Wolz, K.J., Adams, K.I., Richards, J.H., Hannum, E., von Tscharnier Fleming, S., Ventura, S.J., 2019. Multi-Party Agroforestry: Emergent Approaches to Trees and Tenure on Farms in the Midwest USA. *Sustainability* 11, 2449. <https://doi.org/10.3390/su11082449>
- King, A.C., Woodroffe, J., 2019. Walking Interviews, in: *Research Methods in Health Social Sciences*. Springer Singapore.
- Kvale, S., 1996. *An introduction to qualitative research interviewing*. Sage Publications.
- Lamine, C., 2012. « Changer de système » : une analyse des transitions vers l’agriculture biologique à l’échelle des systèmes agri-alimentaires territoriaux. *Terrains & travaux* 20, 139–156. <https://doi.org/10.3917/tt.020.0139>
- Lawson, G., Burgess, P., Herzog, F., Worms, P., 2019. European Agroforestry Policy - history and

- future opportunities [WWW Document]. World Agroforestry | Transforming Lives and Landscapes with Trees. URL <https://www.worldagroforestry.org/publication/european-agroforestry-policy-history-and-future-opportunities> (accessed 2.10.23).
- Lawson, G., Dupraz, C., Liagre, F., Moreno, G., Paris, P., Papanastasis, V., 2005. Options for Agroforestry Policy in the European Union.
- Lojka, B., Teutscheroová, N., Chládková, A., Kala, L., Szabó, P., Martiník, A., Weger, J., Houška, J., Červenka, J., Kotrba, R., Jobbiková, J., Doležalová, H., Snášelová, M., Krčmářová, J., Vávrová, K., Králík, T., Zavadil, T., Lawson, G., 2022. Agroforestry in the Czech Republic: What Hampers the Comeback of a Once Traditional Land Use System? *Agronomy* 12, 69. <https://doi.org/10.3390/agronomy12010069>
- Lund, M., 2012. Multi-stakeholder Co-operatives: Engines of Innovation for Building a Healthier Local Food System and a Healthier Economy. *Journal of Cooperative Studies* 45.
- Maus de Rolley, J.-M., 2014. Etude sur la faisabilité juridique relative au développement de pratiques agroforestières en Wallonie (Etude réalisée dans le cadre du projet Leader « l'arbre en champs »). Ressources NaturellesAWAF asbl - Développement asbl – Gal Racines et Ressources.
- Medici, M., Canavari, M., Castellini, A., 2021. Exploring the economic, social, and environmental dimensions of community-supported agriculture in Italy. *Journal of Cleaner Production* 316, 128233. <https://doi.org/10.1016/j.jclepro.2021.128233>
- Mert-Cakal, T., Miele, M., 2020. 'Workable utopias' for social change through inclusion and empowerment? Community supported agriculture (CSA) in Wales as social innovation. *Agric Hum Values* 37, 1241–1260. <https://doi.org/10.1007/s10460-020-10141-6>
- Messely, L., Prové, C., Sanders, A., 2020. NAAR EEN GEÏNTEGREERDE AANPAK VOOR WELBEVINDEN IN DE VLAAMSE LAND- EN TUINBOUW.
- Miles, M.B., Huberman, A.M., 1994. *Qualitative Data Analysis*. Sage.
- Moreau, J.C., Beral, C., Hannachi, Y., Lavoyer, S., Monier, S., Novak, S., Lerberghe, P. van, Moreau, J.-C., Lerberghe, V., 2020. ARBELE - L'arbre dans les exploitations d'élevage herbivore : des fonctions et usages multiples. *Innovations Agronomiques* 79, 499. <https://doi.org/10.15454/zrtp-av46>
- Morgan, E., Severs, M., Hanson, K., McGuirt, J., Becot, F., Wang, W., Kolodinsky, J., Sitaker, M., Jilcott Pitts, S., Ammerman, A., Seguin, R., 2018. Gaining and Maintaining a Competitive Edge: Evidence from CSA Members and Farmers on Local Food Marketing Strategies. *Sustainability* 10, 2177. <https://doi.org/10.3390/su10072177>
- Mortelmans, D., 2007. *Handboek kwalitatieve onderzoeksmethoden*. Acco, Leuven.
- Mosquera-Losada, R., Santiago Freijanes, J.J., Pisanelli, A., Rois Díaz, M., Smith, J., den Herder, M., Moreno, G., Malignier, N., Mirazo, J.R., Lamersdorf, N., Ferreiro-Domínguez, N., Balaguer, F., Pantera, A., Rigueiro-Rodríguez, A., González-Hernández, P., Fernández-Lorenzo, J.L., Romero-Franco, R., Chalmin, A., García de Jalón, S., Garnett, K., Graves, A., Burgess, P., 2016. Extent and Success of Current Policy Measures to Promote Agroforestry across Europe.
- Munasib, A.B.A., Jordan, J.L. (Eds.), 2011. The Effect of Social Capital on the Choice to Use Sustainable Agricultural Practices. *Journal of Agricultural and Applied Economics*. <https://doi.org/10.22004/ag.econ.104619>
- Nair, P.K.R., Gordon, A.M., Rosa Mosquera-Losada, M., 2008. Agroforestry, in: Jørgensen, S.E., Fath, B.D. (Eds.), *Encyclopedia of Ecology*. Academic Press, Oxford, pp. 101–110. <https://doi.org/10.1016/B978-008045405-4.00038-0>
- Nerlich, K., Graeff-Hönninger, S., Claupein, W., 2013. Agroforestry in Europe: a review of the disappearance of traditional systems and development of modern agroforestry practices, with emphasis on experiences in Germany. *Agroforest Syst* 87, 475–492. <https://doi.org/10.1007/s10457-012-9560-2>
- Palma, J., Graves, A.R., Burgess, P.J., van der Werf, W., Herzog, F., 2007. Integrating environmental and economic performance to assess modern silvoarable agroforestry in Europe. *Ecological Economics* 63, 759–767. <https://doi.org/10.1016/j.ecolecon.2007.01.011>
- Pine, B.J., Gilmore, J.H., 2011. *The Experience Economy*. Harvard Business Press.
- Ramalho, R., Adams, P., Huggard, P., Hoare, K., 2015. Literature Review and Constructivist Grounded Theory Methodology [WWW Document]. URL <https://www.qualitative->

- research.net/index.php/fqs/article/download/2313/3876?inline=1 (accessed 1.30.23).
- Recht van bij de boer [WWW Document], n.d. . Recht van bij de boer. URL <https://www.rechtvanbijdeboer.be/> (accessed 2.12.23).
- Reubens, B., Wauters, E., Coussement, T., Van Daele, S., Van Nieuwenhove, T., Balis, J.-P., Pardon, P., Borremans, L., Nelissen, V., Raman, M., Elsen, A., Mertens, J., Reheul, D., Verheyen, K., 2019. Agroforestry in Vlaanderen 2014-2019.
- Rois Díaz, M., 2022. Increasing agriculture sustainability in Europe: driving factors for agroforestry implementation.
- Rois-Díaz, M., Lovric, N., Lovric, M., Ferreiro-Domínguez, N., Mosquera-Losada, M.R., den Herder, M., Graves, A., Palma, J.H.N., Paulo, J.A., Pisanelli, A., Smith, J., Moreno, G., García, S., Varga, A., Pantera, A., Mirck, J., Burgess, P., 2018. Farmers' reasoning behind the uptake of agroforestry practices: evidence from multiple case-studies across Europe. *Agroforest Syst* 92, 811–828. <https://doi.org/10.1007/s10457-017-0139-9>
- Rolo, V., Hartel, T., Aviron, S., Berg, S., Crous-Duran, J., Franca, A., Mirck, J., Palma, J.H.N., Pantera, A., Paulo, J.A., Pulido, F.J., Seddaiu, G., Thenail, C., Varga, A., Viaud, V., Burgess, P.J., Moreno, G., 2020. Challenges and innovations for improving the sustainability of European agroforestry systems of high nature and cultural value: stakeholder perspectives. *Sustain Sci* 15, 1301–1315. <https://doi.org/10.1007/s11625-020-00826-6>
- Rouquet, A., Paché, G., 2017. Re-enchanting logistics: the cases of pick-your-own farm and large retail stores. *Supply Chain Forum: An International Journal* 18, 21–29. <https://doi.org/10.1080/16258312.2017.1279031>
- Samoggia, A., Perazzolo, C., Kocsis, P., Del Prete, M., 2019. Community Supported Agriculture Farmers' Perceptions of Management Benefits and Drawbacks. *Sustainability* 11, 3262. <https://doi.org/10.3390/su11123262>
- Santiago Freijanes, J.J., Mosquera-Losada, R., Pisanelli, A., Ferreiro-Domínguez, N., González-Hernández, P., Fernández-Lorenzo, J.L., Romero-Franco, R., Rigueiro-Rodríguez, A., Burgess, P., 2015. Maps and Indicators of Rural Development Measures, potentially related to Agroforestry, across the EU (2007-2013).
- Schneiders, A., Alaerts, K., Michels, H., Stevens, M., Van Gossum, P., Van Reeth, W., Vught, I., 2021. Nature Report Flanders 2020: Facts & figures for a new biodiversity policy.
- Shortly, A., Kepe, T., 2021. Consuming the city: challenges and possibilities for foraging in Toronto's parks. *Forests, Trees and Livelihoods* 30, 75–89. <https://doi.org/10.1080/14728028.2020.1863865>
- Smith, J., Pearce, B.D., Wolfe, M.S., 2012. A European perspective for developing modern multifunctional agroforestry systems for sustainable intensification. *Renew. Agric. Food Syst.* 27, 323–332. <https://doi.org/10.1017/S1742170511000597>
- Sollen-Norrlin, M., Ghaley, B.B., Rintoul, N.L.J., 2020. Agroforestry Benefits and Challenges for Adoption in Europe and Beyond. *Sustainability* 12, 7001. <https://doi.org/10.3390/su12177001>
- Statbel, 2022. Bevolkingsdichtheid | Statbel [WWW Document]. URL <https://statbel.fgov.be/nl/themas/bevolking/bevolkingsdichtheid> (accessed 4.26.23).
- Torralba, M., Fagerholm, N., Burgess, P.J., Moreno, G., Plieninger, T., 2016. Do European agroforestry systems enhance biodiversity and ecosystem services? A meta-analysis. *Agriculture, Ecosystems & Environment* 230, 150–161. <https://doi.org/10.1016/j.agee.2016.06.002>
- van Benthem, J., 2017. Samen verantwoordelijk-Community supported agriculture, in: *Volle Oogst*. p. 178.
- Van Bogaert, T., Platteau, J., Roels, K., 2021. Landbouwrapport 2020. Departement Landbouw en Visserij, Brussel.
- Van der Schueren, B., 2021. WALKING INTERVIEWS AS A METHOD TO PAVE THE WAY FOR RECIPROCAL CERL PARTNERSHIPS. ULB/VUB.
- van Zanten, B.T., Verburg, P.H., Espinosa, M., Gomez-y-Paloma, S., Galimberti, G., Kantelhardt, J., Kapfer, M., Lefebvre, M., Manrique, R., Piorr, A., Raggi, M., Schaller, L., Targetti, S., Zasada, I., Viaggi, D., 2013. European agricultural landscapes, common agricultural policy and ecosystem services: a review. *Agron. Sustain. Dev.* 34, 309–325. <https://doi.org/10.1007/s13593-013-0183-4>

- Willis, P., 2012. Engaging communities: Ostrom's economic commons, social capital and public relations. *Public Relations Review* 38, 116–122. <https://doi.org/10.1016/j.pubrev.2011.08.016>
- Zoll, F., Specht, K., Opitz, I., Siebert, R., Piorr, A., Zasada, I., 2018. Individual choice or collective action? Exploring consumer motives for participating in alternative food networks. *Int J Consum Stud* 42, 101–110. <https://doi.org/10.1111/ijcs.12405>

7. Appendices

7.1. Appendix 1- Interview guide: CSA farmers

- General information on the farmer
 - Age
 - Experience on the farm, Experience as farmer
 - Studies, trainings
 - Family situation
- General information on the farm
 - CSA type, general organization
 - Crops
 - Number of hectares
 - Employees
 - Number of members
 - Leave ratio
- General motivations and expectations related to the CSA model
- Agronomic and environmental motivations and expectation related to the CSA model
 - Environmental contribution of the farm and its CSA structure
 - Farming practices
 - Desired improvements/Barriers to improvement
 - Perceived expectations from members related to agronomic and environmental aspects
 - Agroforestry practices
 - Strengths and barriers linked to agroforestry practices
- Social motivations and expectations related to the CSA model
 - Community feeling on the farm
 - Farm activities
 - Shared decision
 - Expected member's commitment
 - Perceived expectations from members related to the community feeling and farm activities
 - Desired improvements/Barriers to improvement related social aspects
 - Contribution of AFS on social aspects
- Economic motivations and expectations related to the CSA model
 - Financial implication of the CSA structure
 - Up-front payment
 - Perceived expectations from members related to the up-front payment
 - Subsidies
 - Contribution of the CSA model to the profitability of the farm
 - Cooperative model
 - Shared investments
 - Perceived expectations from members related to the shared investments
 - Economic/financial barriers

7.2. Appendix 2 - Interview guide: CSA members

- General information about the member
 - Type of participation
 - Numbers of years as member
 - Integration process, source of information
 - Consumption patterns
 - Family situation
 - Age
 - Studies
- General motivations and expectations related to their CSA participation
- Agronomic and environmental motivations and expectations related to the CSA model
 - Ecologic aspects
 - Contribution of the CSA model to sustainable agriculture
 - Product expectations
 - Observed agronomic practices
 - Possible improvements
 - Agroforestry
 - Contribution of agroforestry to the CSA experience
- Social motivations and expectations related to the CSA model
 - Involvement in the CSA
 - Community feeling
 - Relations with farmers and other members
 - Farm activities, festive events
 - Improvement to social involvement
 - Barriers to involvement
 - Shared decisions
- Economic motivations and expectations related to the CSA model
 - Up-front payment
 - Risk sharing
 - Shared investment
 - Cooperative model
 - Improvements to economic involvement
 - Barriers to economic involvements

7.3. Appendix 3 - Consent form

You are invited to participate in a study being conducted in Flanders, Belgium by Nathan Bosseler. This study involves conducting interviews that investigate the possible link between CSA structure and agroforestry practices in Flanders. Please read the attached participant information sheet so that you know what to expect from participating in this study and how the information you provide during the interview will be used.

Before you begin the interview, you will be asked if you consent to participate in this study. The information you need to know is in the next section. If you have any questions about the study, please feel free to ask.

Interview conditions

When giving your consent, before beginning the interview, you should be aware that:

- By giving permission to proceed with the interview, you are voluntarily consenting to be a participant in this study.
- You may refuse to answer questions and you may withdraw from the study at any time without giving any reason.
- Participation in the study involves an interview, which lasts approximately 40 minutes, and you agree that your answers will be recorded by the interviewer on paper or electronically and that the interview may be recorded via audio recording.
- All information provided from the interview will be analyzed along with information from other participants. The findings of this study will then be published in a master's thesis that will lead to the completion of a master's degree in Agroecology.
- The data collected will also be used as part of the Agroforestry 2025 project currently underway at ILVO (Institute for Agricultural, Fisheries and Food Research).
- Personal information collected to identify you, such as your name, will not be shared outside the research team.
- Your answers to questions will be anonymized (no reference to your name). All your answers and data will be kept strictly confidential but by your consent to participate, you agree that members of the research team involved in this study may analyze the information you provide.

If you have any questions before participating in the interview, please contact: Nathan Bosseler

Institution/organization: NMBU (Norway); Isara, Lyon (France)

Telephone number: +32492 99 70 77

E-mail address: nbosseler@etu.isara.fr

Please keep this informed consent form for future reference.

Thank you very much for participating in this study.

After reading the consent form, do you agree to all the terms of this interview?

Name, date, signature

7.4. Appendix 4 - Interview guide: conventional farmers

- General information about the farm and the farmer
 - Role on the farm
 - Farm type
 - Farm characteristics
 - Numbers of year as farmer
 - Studies, trainings
 - Farm Employees
 - Proportion arable land/pasture land
 - Leased land
 - Sales channels
 - Label
 - Subsidies
 - Agro-environmental measures
- Agroforestry practices
 - Familiarity with the practice
 - Information source
 - Advantages and disadvantages of the practice
 - Technically
 - Marketing
 - Economically
 - Environmentally
 - Socially (Social perception on the local community)
 - (Potential) Motivational sources to implement agroforestry
- CSA structures and Alternative food networks
 - Familiarity with these structures
 - Involvement with these structures
 - Advantages and disadvantages of these structures
 - Advantages and disadvantages of CSA structures
 - Potential contribution of a CSA structure to the farm
 - Economic
 - Agronomic
 - Environmental
 - Social
- Community Supported Agroforestry (CSAF)
 - Presentation of the conceptual model through powerpoints followed by an open discussion about strengths and constraints of the model.

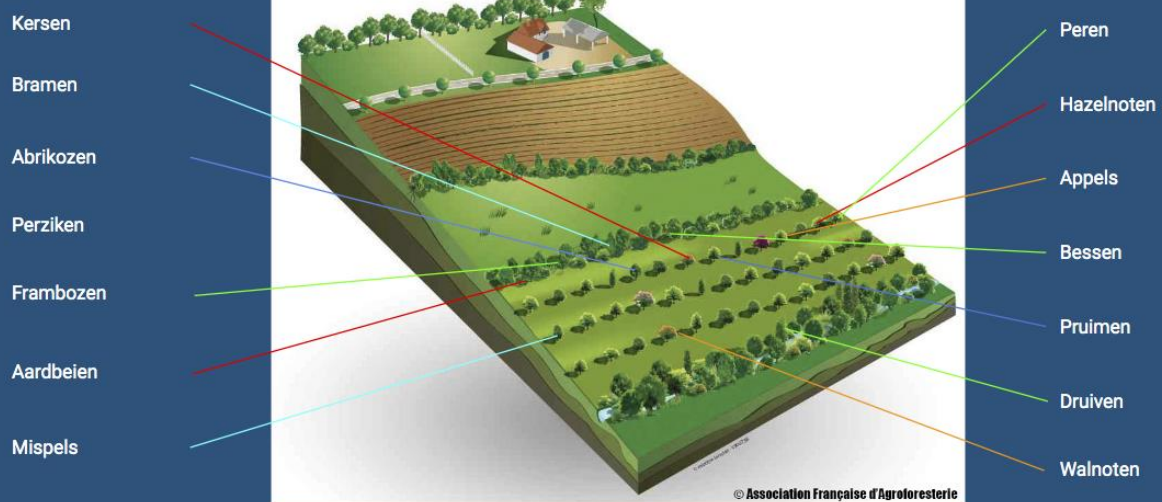
- General presentation

Community Supported Agroforestry (CSAF)

- System inspired by the CSA system.
- Members pay at the beginning of the year to purchase a portion of future production.
- Members can come and harvest the produce themselves.
- Creation of a consumer community around local food production.
- The farmer is a member of the community.
- The farmer uses the community to sell his other products.

- Visual

Fruit Community



- Objectives

CSAF: Objectives

For farmers

- Crop diversification
- Shared investment risks
 - Extra income
- More social interactions
- More ecosystem services
- Introduction to alternative food systems

For the local population

- Direct access to local products
 - Place to relax
- More social interaction
- Increased awareness for farmer's reality

For the environment

- More trees
- More space for biodiversity
- More ecosystem services

7.5. Appendix 5 - Reconnaissance round

7.5.1. Agronomic and environmental characteristics

Sub-categories	Themes	Sub-themes	Meaning units (Quotes/descriptions)
Strengths	Sustainable agronomic practices	Agro-environmental measures	This theme includes agronomic practices mentioned by farmers such as the use of green manure, compost, plant associations, crop rotations but also rotational grazing, the use of flower strips, permanent grasslands, hedgerows and the placement of birdhouses.
		Soil preservation	Many farmers are trying to improve soil health or increase the soil carbon content by applying surface tillage.
		Biological agent	All farmers work organically with preventive measures like a healthy soil, strong plants with adapted breed and nets against some specific insects. Most limit the use of organic pesticides to specific pests.
			Member: "I know what he doesn't do! He doesn't use chemicals or synthetic products to control pests and diseases or to fertilize."
		System resiliency	Farmer: "By combining different crops and different overlapping environments, we improve the resiliency of the farm including regarding economic perspectives. If one crop fails, we have a lot of others that will bring a return. "
	Agroforestry practices	Preserving Biodiversity	Farmer: "We have 20m wide cultivation strips with trees in between. Under the trees we keep wild grasses during the high season which is a perfect housing for pest predators (beetle nest). Few years ago we experienced high pressure from caterpillars but there were so many great tits living in the trees that we had only a few damages to the vegetables."
			Member: "These small integrated natural elements allow the agricultural areas the remain ecologically interesting"
		Additional production	Farmer: "Some produce fruits and some others are just producing biomass that we use for our compost. The roots of the trees are lifting up important nutrients that we make available to our plants by trimming on trees or on a regular basis and by composting the branches and the leaves. "
		Buffer Zones	Farmer: "Our fields are surrounded by trees and high hedgerows combined with grass strips because it is good for water retention and to have protection against spray agents from our neighbors."
	Sustainable food consumption	Local production	Member: "Before we were part of this CSA, we would buy our vegetables at supermarkets. It was not very good with all the transport and the different stakeholders involved before having the food on our plates. Here, it's very short. He produces in the village where we live, and it comes directly from him without anyone in between"
			Farmer: "Everything is produced here on the farm and consumed by people living in the surrounding villages"

		Educate consumers	Farmer: "We teach people to eat things that are alive. That's why we also work with energy from minerals, rocks and crystals on our fields. We use the energy from these crystals to strengthen the power of the food we produce here"
			Member: "Get access to healthy and divers' food. Also, food that is link to the season, learning new things as we don't know how it works when we go to the supermarket"
		Experiencing food	Member: "I spend a lot of time harvesting and cooking. I take pleasure in doing it, it is my hobby. Sometimes it's considered as extreme by my family, but they never really complain because at the end they have good food. "
			Farmer: "Also the fact that people can directly get their vegetables from the ground is giving (city)people very strong feelings. They really experience their food which makes the experience more intense"
		Food security	Member: "What is also nice, when there are food delivery problems within big food supply channels, it's not a problem for me. I'm independent from these as I can go to the farm to find something to eat. This feeling of independence is important for me. "
Constraints	Agroforestry practices	Complex management	Farmer: "Not all vegetables do appreciate the shade of trees. It would complexify my rotation plan even more"
			Farmer: "Some of our trees are too close to each other, making it difficult for mechanization and for the productivity of the under-crops."
			Farmer: "We lease some fields so we cannot do whatever we want everywhere"
		Lack of space	Farmers explained that the establishment of trees was not justified on a limited space because it would not deliver enough economic profitability and ecosystem services. They preferred to use green manure and flower strips that would attract as many beneficial organisms as few trees would do without impacting productivity and the work efficiency.
			Farmers suggested that the limited number of trees that could be planted would not be sufficient anyway to meet the demand from their members.
		Difficult mechanization	Farmer: "As we work with contractors for some field work, we noticed that their tractors were too big for the AF design we have. This way they have damaged some trees and probably their machines too."
			Farmer: "You cannot have vegetables right under the tree. In order to be able to use your tractor you need at least 2m between the tree and your vegetable bed."
		Workload	Farmer: "We need to remove the weeds in between the young trees, three times a year to avoid competition, but it's always needed when we have so much work with the veggies. "
			Farmer: "I can manage 3 hectares with 2 people whereas some colleges only manage 0,5 hectares with the same workforce because they are less mechanized, have less accessibility on their land due to the trees"

7.5.2. Social characteristics

Sub-categories	Themes	Sub-themes	Meaning units (Quotes/descriptions)
Strengths	Community feeling	Shared governance	Member: "Every November, there is a general assembly organized by the farmer to show the accountancy of the CSA, to ask the member what went well and what went wrong and possible improvements."
			Farmer: "The new strategy plan has been designed by members in association with some workers within a task group. At the end, the direction committee will have the final word but it is

			important to involve the members in the creation of this strategic plan."
			Members: "You get the possibility to pay a price adapted to your revenues and you can spread your payment along the year."
			Farmer: "Task group meetings on different topics are organized along the year in order to hear the potential recommendations from the members. This is organized following different topics in order to take the time to fully cover all the different aspects of the farm. Transparency toward the members is central in our farm."
		Farm activities	Farmer: "It's important to organize extra activities where members can do things together. It is from these kinds of activities that the community feeling can grow. When the members come to harvest vegetables, they mostly do it alone so it's important to organize other activities where they can actually meet."
			Member: "I try as much as possible to come to the community workdays or at the different events taking place on the farm. It brings something more to the CSA experience. I did meet people with whom I have a good bond"
			Member: "The farmer also organizes special pick-up points. Every time it is somewhere else. It's nice because it's not just a place where you can pick your stuff, there is the possibility to drink a glass or a snack with a bonfire. There are also people that come to sell some other products. It looks like a small market. I think it's really a nice initiative."
			Farmer: "Community feeling is very important as we need to trust our members. We try to foster this by organizing co-working days, parties, cooking sessions, and participative activities. Our members need to be ready to share the production with other members by respecting the allowed quantities to harvest"
	Personnal time	Self-harvest activity	Member: "It's mainly a moment when I can relax. After working a full day behind my computer. When I go in the field, all my stress/tension goes away. I go once or twice a week. It takes me 1 hour 30, to go there to harvest and come back."
			Farmer: "We have a four-element garden in the middle of the farm where people can go and meditate or just relax. "
			Farmer: "One thing is sure, people do not consider self-harvesting as work! They don't consider they should be paid for doing that. Some are even ready to pay just to get the opportunity to be in nature and in contact with it."
Constraints	Structural limits	Lack of competences	Farmer: "Working with members that are not from the farming sector is sometimes tiring. You always have to give more explanations which can be hard when you have an off-day. "
			Member: "I think the general community feeling could be improved. I do not know any members out of my former colleagues but I hope the farmer will find a partner that can work more on this aspect. "
			Farmer: "Another problem related to cooperants. They helped us a lot with tree planting, but I noticed that a lot of trees were not correctly planted which led to an extra death rate. It was really helpful to get their help and to feel their support but now I know that it requires extra control. "
		Time constraints	Farmer: "The reason that is often presented to explain a departure from the CSA is time. It takes too much time to harvest and prepare the vegetables every week."
			Member: Several members explained that they were not much involved in the farm activities because they lacked the time to participate due to working and having children.
			Farmer "In the original project, I was supposed to form a partnership with someone who would be responsible for

			organizing events such as concerts, conferences, exhibitions in a barn next to the farm. The partner finally changed his mind and I don't have enough time to take over this part. "
		Lack of facilities	Farmers: "Logistically, it's not possible to welcome people on regular basis on the farm as there is no drinkable water, no place where people can sit comfortably, no electricity and I would need to hire someone else to care for that part as I don't have time for that"
			Member: "I would love to have a space on the farm where cooperants could meet each other through the organization of workshops. I think it would attract more people to come."
	Low social capital	No social expectations	Farmer: "Members that leave the CSA at the end of the season are often people that were not very involved on the farm. I'm often not able to put a face on their names."
			Farmer: "I never feel alone here but also appreciate being alone. I also enjoy the days where I can work here alone. "
			Member: "For the moment I don't have a strong interest in further involvement in the CSA. I'm undergoing big changes in my professional life so I want to keep focus on that."

7.5.3. Economic characteristics

	Sub-categories	Themes	Quotes/description
Strengths	Up-front payment	Short term security	Farmer: "It helps to plan the investments and most payments come at the beginning of the year which makes it possible to deal with these early bills without stress."
		Cost effective	Member: "It was a calculated economic decision. If you want the same quality in an organic shop, it's much more expensive."
			Member: "I must say, it's more than just food that I get there. Going there with the bike is a sport session for me. It's also a yoga session or like having a session with a psy. Considering all the activities that it potentially replaces; I certainly save a lot of money. "
	Shared capital	Market independence	Farmer: "This system also makes me independent from the market aspects as we are delivering directly to our members. We are not directly dependent on market prices. We have our own costs."
		Cooperative model	Member: "I invested money here without expecting a return as it would be the same on my bank account. Here at least, it supports nice projects and not a shady organization."
			Farmer: "We lease land from the Landgenoot. So if we want to buy new fields we ask our members to be cooperators of this non-profit. It always works very well when they do crowd-funding operations for us."
		Strong member's support	Farmer: "When I need some extra capital, I ask the CSA member if there are ready support my "new" project by giving me a credit"
			Farmer: "The social involvement of our customers gives us much more investment opportunities as they are ready to participate in capital investments. This way we raised 200 000€ in 6 weeks."
			Member: "I did a win/win loan with the farmer. This way I can help the project and I can reduce my yearly taxes at the same time."

Constraints	Up-front payment	Limited revenues	Farmer: "Currently, it's 320€ per harvest-share. I want to keep acceptable prices in order to lower the barrier for new potential members. I think, I could further improve some parameters but then I would have to raise my prices to a level where few members would still be ready to pay"
			Member: "It does not represent an effort for us to pay. We are lucky enough to have enough money so that we don't have to check for every euro we spend but I'm aware that some people cannot participate due to the cost it represents."
	Shared capital	Hard finding cooperators	Farmer "We have approximately 70 cooperants but the goal is to reach 200"
			Member: "I had the opportunity to be part of the group of co-owners of the field that is leased to the farmers, but I did not have enough money at the time. If I could do it again today, I would do it."
		Control independence	Farmer: "I don't want help for capital investments as I want to remain my own boss."
	Agroforestry practices	Not economically profitable	Farmer: "There is a real demand for organic fruit but it's not so easy. To grow fruit in a professional way, you need to spray and have enough trees. Otherwise, 80% of the production is going to be dedicated to juice which is not profitable. Spray would be needed to avoid stains on the fruits as the visual is still important for most consumers. "
			Farmer: "The most influencing factor for the share price is the workforce cost. That is our biggest cost."
		Big investments	Farmer: "It takes a lot of time before you can get any return from the trees as such we need to find short term revenues. I see the CSA as a kind of subsidy system to support the implementation of AFS"
			"We have grain fields where it could be possible but we still need to see how we are going to do it. This is also a big investment with some consequences."

7.6. Appendix 6 - Feasibility analysis

7.6.1. CSAF advantages

Sub-categories	Themes	Quotes/descriptions
Marketing related forces	Good marketing tool	"It's important to have a story to tell where your customers can find themselves in it. And CSAF can be that story."
	Create awareness for farmers' reality	"If we strengthen our relationships with consumers, then a problem that is considered as a farmer problem today can later be shared by consumers. Simply because if they know us better then they will no longer accept the way we are sometimes used or mis considered. The "they" will turn into a "we"."
	Promote farmer's image	"Being a respected person within the community requires extra time and effort from the farmer but it is of course a nice recognition if you manage to be that person."
New opportunities for members	Leisure opportunity	"For sure some of our customers would appreciate going for a walk and relaxing in the middle of our fields."
	Alternative investment opportunity	They thought about crowdfunding for a future agroforestry system in order to compensate for the loss linked to the shading effect on the main crop. They thought about selling shares every year as compensation. Something like carbon credits without specific compensation.
Production related forces	Interest for fruits	"I think that a lot of city people or people with urban lifestyles would be interested in having fruits through such a concept to get a box or harvest by themselves."
		"Our clients are often asking if we have vegetables in our shop. They are really looking for a larger offer of local products."
	Build self-sufficiency	"Very interesting concept that resonates with Mark Shepard's vision of agroforestry as it would directly feed people with local food."
	Potential for collaboration	"If someone wants to initiate such a project on the farm. If this person takes full responsibility (physically and financially) then he is welcome. He has to create his own business. Of course it has to match with my business and it can't be to my own loss but I think we need to develop more structure like that."
Economic related forces	Secured income	"Financially, it's going to be a little bit less stress as you have some perspective about the incomes"
	Successful crowd-funding	They thought about crowdfunding for a future agroforestry system in order to compensate for the loss linked to the shading effect on the main crop. They thought about selling shares every year as compensation. Something like carbon credits without specific compensation.
	Opportunity to valorize unproductive land	"The first thing is to check which kind of field you are going to use. It would be good to do that on fields that are not well adapted for arable cropping. This way you can better valorize these fields."
	Good plan B	"It could be a good alternative business model in case the nitrogen legislation is applied."

7.6.2. CSAF disadvantages

Marketing related problems	Hard finding members	"You would have to find the members to be part of this system and it is not going to be easy as people are not familiar with such a system"
		"I don't think people are going to be ready to do something like that. They never did it so they are not used to it. You have to come every year again."
		"CSA members are different from the one we have here. They don't have the same priority. I think CSA members are wealthy people who can and who want to invest money and time in this kind of project."
	No need for more customers	"We don't need to attract more customers. We did this step already. We started by doing visits and telling our story and that's how people started to ask for our meat. From this point grew our butchery business. Today it is the opposite. People come here for our meat and then ask for the story."
	Aimed at urban people	"Some people would be interested but maybe not a lot of people from our village because they are not really open minded but people from Brussel would certainly come. Or people who have a bigger interest for the environment."
		"People from the village would not really be interested in this system as they are not as open to this kind of model as city people."
Economic related problems	No example	"If there is a profitable business model then we are interested. How it has to be organized is less important from the moment you can live decently from it. But we need to be sure that it works."
		"The CSAF system would directly provide food to people so it's interesting but it doesn't exist already which is certainly a threshold. It would be a leap into the unknown".
	Complex price setting	"Paying the yearly fees is not going to be easy either as it is difficult to put a monetary value on the production. Certainly in the first years such a system has to be planned for several years. You will certainly have to adapt the price based on what can be produced with low prices in the first years and finally higher prices when the trees are grown up."
	Diverted profit	"Even with a coordinator between us and the customers. What does it cost to have a coordinator? It's always like that, nice ideas but in the end all the money ends up in someone else's hand."
		"Cooperation often starts with noble goals but with time these can disappear in the profit of people managing the structure or big shareholders. As a small shareholder it is difficult to have a voice. That's what happened with bank cooperatives. It is not yet the case in small food cooperatives but you need to be very careful about that in the long term."
	No plan B	"You need to have a catch net ready which also requires extra work, investments and planning. If you buy equipment to process your extra apples then you need to make sure you have extra apples every year to amortize your investment while maintaining enough production for the members. It's very hard to assess the size of your security

		net."
		"If you have such a diversity of fruit you can't make any economy of scale making it impossible to sell fruits through other channels"
	Long term commitment	"Before having such a system running you have to wait many years."
		"It's very difficult to assess the economic feasibility of an AF project. Especially in the short term, it is only expenditure. We know it would never be as beneficial as the different vegetables we have here. The benefits that you can get are very hard to estimate in economic terms. "
Productivity related problems	Main production at risk	"By having customers walking on the grass, you will damage it which will negatively impact your primary activity."
		"Our beans would never grow under these trees. We would have to adapt our cropping system. Maybe barley would be better."
	Reduce machine accessibility	"You have to keep enough space for your machines. You have to place the trees in a way that you only lose this line and not more. In this case it's feasible."
		"Also it makes it more difficult with the machines. Therefore we chose to keep it separated by planting a wood area of 5 hectares. We often damage our equipment by touching branches when we ride along woods or hedgerows."
	Feed the country paradigm	"I would not use the well productive fields to do that. Maybe on the border of your field but not in the middle. You would lose way too much space. We need to produce food. We should call a spade a spade."
	Need consistent help from members	"Having people really working on the farm is very difficult. It requires a big organization and it doesn't go faster as compared with what the farmer could do alone. If people commit to come every week than it can be interesting but it's difficult to find people that can commit one day every week"
Responsibility related problems	Maintain control independence	"We don't have shared investments with our customers as we want to work our own way. But why not in the future. We try to be independent from banks by using our own financial means."
		"I don't really know this kind of structure and I want to decide myself about my business. If I do something with the support of the community it must be successful. I prefer to do it on my own because in this case I have nobody to blame , just myself."
	Legal Burden	"With seasonal lease it's impossible to implement such a system."

		"We don't ask for any subsidies for these trees. It is not much money and then you get more control. On top of that, if there is one mistake the fine will be bigger than what you got."
		"Are people really ready to go up the scale? Are they ready to take that risk? And who will be responsible if someone is injured?"
	Failure justification problem	<p>"You should make sure everything is well organized. If there is no production, you will have to justify yourself in front of your customers. I also have to justify myself if there is a problem but I have more autonomy compared to a CSA structure."</p> <p>"In that system, if there is no production. Who is going to be responsible for that?"</p>
Behavioral related problems	Need communication skills	"Asking capital investments from your customer is not cheaper than going to the bank as you need to be transparent about everything in order to keep them on board."
		"Organizing the crowdfunding was horrible. I think it is linked to my personality. I don't like to ask for help."
	Need human management skills	"Ten years ago, I would have gone for it. Today with the experience that I have with guiding people on the farm, I would think twice about that CSAF system. With more hectares to my disposal I would go for AF but not sure for CSAF. To make your rules clear it takes a lot of energy. This energy we need to run the farm. Some farmers are very good at it and like to do it but if it's not the case, it's hard. You have to be 100% behind this system if you want it to be successful."
		"If you get involved in a cooperation with consumers, you need to deal with these people. Have them home for a visit, sending mails, answer their calls, ... Lot's of farmers really do not want to do that."
	Need mentality change	"That is like that, farmers are selfish and difficult people. It needs a lot of time (several generations) to get certain ideas accepted. No easy sector."
		"The farmer who will start this tomorrow, is already in an alternative dynamic today. It's the same with the transition towards organic practices. 90% of the transition takes place in the head of the farmer. A conventional farmer would not do something like that."
	Need educated members	"People need to understand how exactly it works and to respect your farm. We had a bad experience during the covid time. We opened a path across our fields but we had to clean it up after a few weeks because people were just throwing all types of waste during their walks."

		"Lots of people think they know a lot about fruits but they barely know anything so if you implement such a system you have to make sure it's going to be okay to let people do."
		"When you sell something directly to a consumer, you are a good person, a good farmer. 30 minutes later, when you fertilize your field with manure, the same consumer will insult you."
		"Not everybody has already adopted the needed consumption habits. We still seriously need to do something about it. People are not well educated regarding their food habits, they want food for free."
Workload related problems	Complex management	"This will need a good financial model behind. This will certainly need a lot of CAP support."
		"As a farmer it's more work. You need to remove the branches, you have to remove the roots under your crops."
		"The system would need to be very well designed as you don't want the people to walk on your vegetables and you don't want detrimental effects of the trees on your crops."
		"Working with a credit system (pre-paid) would be much more difficult to handle. We would confuse normal customers with prepaid customers. It would require more work."
	Need new technical skills	"Having an external person or a group of people managing this part could be a solution to reduce the workload of the farmer but these people also need to know something about it. If it's not the case, it's soon going to create problems."
	Need to avoid self-exploitation	"Our ice-cream shop is already very successful, which is a lot of work. At some point we have to live. We cannot always do more."
		"You need time. Maybe with 40 cows it would work. But with 130 cows we don't have this time anymore."
	Need for surveillance	"It still takes a lot of time even if you don't harvest yourself. You have to keep contact with the customers and keep control of who is coming on the field. I heard here in the region that someone who did something similar (a community garden) had to deal with fruit theft."
		"I think It would be best to have one specific day in the week where people can come. You still have to keep control over who is coming into the field."

