



Sourcing Ecosystem Based Agricultural Raw Materials

Insights from Middle Chain Actors in Swedish
Agri Food Industry

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Degree project/Independent project • 30 credits
Swedish University of Agricultural Sciences, SLU
Faculty of Natural Resources and Agriculture Sciences/Department of Economics
Environmental Economics and Management
Degree project/SLU, Department of Economics, 1648 • ISSN 1401-4084
Uppsala 2025



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Credits: 30 credits

Level: Second cycle, A2E

Course title: Master thesis in Business Administration

Course code: EX0904

Programme/education: Environmental Economics and Management

Course coordinating dept: Department of Economics

Place of publication: Uppsala

Year of publication: 2025

Title of series: Degree project/SLU, Department of Economics

Part number: 1648

ISSN: 1401-4084

Keywords: *Ecosystem Based Agriculture, sustainable sourcing, stakeholder collaboration, middle chain actors*

Swedish University of Agricultural Sciences

Faculty of Natural Resources and Agriculture Sciences

Department of Economics

ABSTRACT

This study explores the roles and perspectives of middle chain actors such as distributors, retailers, and processors in integrating Ecosystem Based Agriculture (EBA) into Sweden's agrifood supply chain. The primary intention of the study is to contribute to the understanding of the factors such as opportunities, challenges and drivers that influence the decision to source raw material from EBA. Major four food processing companies in Sweden participated in semi structured interviews as a method of gathering qualitative data. Thematic analysis was used to examine the data, with a connection to stakeholder theory and SWOT analysis. The results highlight that consumer demand, sustainability objectives, long term brand positioning may support the adoption of EBA. However, challenges including certification cost, inconsistent supplies and legislative restrictions may prevent the broader adoption of EBA. Notably the findings further emphasize that collaboration among different stakeholders is critical to enabling systemic change. The study concludes that middle chain actors can be a powerful agent for sustainable transformation if supported by relevant strategies and collaborative governance in aligning with the ecology and market interests.

Keywords: Ecosystem Based Agriculture, sustainable sourcing, stakeholder collaboration, middle chain actors

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Abbreviations

CAP	Common Agricultural Policy
DDT	Dichloro-Diphenyl-Trichloroethane
EBA	Ecosystem Based Agriculture
SME	Small and medium sized enterprises
TA	Thematic analysis
SEK	Swedish Kronor

1.Introduction

Agriculture is vital for human life as it provides the food for survival and supports economic growth, social stability and public health. It secures jobs and rural livelihoods as the foundation of the world food system (Norton et al., 2021; Stamoulis and Zezza, 2003). However, modern farming methods also contribute to the harmful environmental effects such as greenhouse gas emission, soil degradation and biodiversity loss and these could happen as a result of extensive use of water, land and chemical inputs such as fertilizers (Rockström et al., 2020). Although the environmental problems caused by agriculture are well known, lowering agricultural production to reduce the ecological damage is not a practical solution. Since food is a main requirement of society, cutting the production would make hunger worse by threatening food security (ibid).

Ecosystem Based Agriculture (EBA) is an evolving approach which uses ecological ideas into agricultural practices. Reducing the dependency on inputs, restoring natural ecosystems, will make EBA seek to strike a balance between biodiversity and sustainability (FAO, 2017). This could be considered as a major change, focusing on reshaping food and farming systems to be more sustainable over time instead of focusing on quick technical solutions. Although there is a growing interest in EBA, most of the literature that is currently available focuses on consumers' willingness to choose environmentally friendly agricultural products (Tobler et al., 2011; Vermeir & Verbeke, 2006) or farmers' adoption of sustainable practices (Francis & Porter, 2011; Caleffi et al., 2023; Kröbel et al., 2021).

Middle chain actors, such as manufacturers, distributors, retailers, and food processors, have gotten a lot less attention. These middle chain actors have a pivotal role in identifying consumer demand and agricultural output since they act as intermediaries between farmers and consumers. Their sourcing policy of raw materials, marketing plans have a huge impact on the kind of products they plan to produce (Walton, 2023).

Middle chain actors have the power to help or hinder the transition to sustainable farming. For example, if they focus too much on low pricing, short term demand, and food appearance, they may promote detrimental farming methods (Messner et al., 2021). On the other hand, they will be able to promote constructive change if they can concentrate on the long term. They can support EBA by encouraging supplier chains to adopt more ecologically friendly practices and buying raw materials that are produced in accordance with ecological principles (Walton, 2023).

Nevertheless, little research has been done on the reasons for these actors' adoption of EBA, as well as the opportunities and challenges that they encounter when putting such techniques into practice. The establishment of sustainable food systems requires an understanding of their role.

1.1 Problem Statement

Since the middle chain actors decide about their prices, the procurement of raw materials can have a huge influence on food systems. In real world situations, these tactics may lead to overproduction and excessive chemical fertilizer use, both of which are detrimental to the environment (European Commission, 2023).

EBA can assist in solving many of the issues by encouraging practices which enhance ecological balance and lead to the reduction in chemical inputs such as agroforestry, organic farming. Attitudes and behavioural patterns of the middle chain actors are equally important in the process of putting up economically viable farming methods, even farmers play a significant part in the implementation process of EBA (Björklund et al., 2012).

Existing evidence suggests that structural barriers including higher production costs, logistical complexities, a lack of recognized certification schemes, and pressure to maintain competitive pricing and continuous supply hinder their ability to adopt and promote EBA-aligned sourcing strategies (Caleffi et al., 2023; Rockström et al., 2020).

Food value chains and sustainability are closely related in the context of Sweden. It is especially critical to comprehend how middle chain actors view EBA. Although these individuals have a significant influence on how agricultural methods are implemented, expanded or opposed, sustainability related research studies do not represent their viewpoints fully. By filling this knowledge gap and providing a thorough investigation of how these middle chain participants perceive and impact the adoption of EBA in the agri food system, this study significantly advances the field.

By focusing on their views and actions, the study brings forward valuable insights into the dynamics that either support or hinder the integration of ecosystem based practices. These insights are not only relevant to scholars and sustainability researchers but also to policymakers and different industry stakeholders who design interventions and regulations. The study identifies specific leverage points where middle chain actors can act as catalysts for broader sustainability transitions.

Recent shifts in Swedish agricultural policy and increasing consumer demand for sustainability have created both opportunities and challenges for mainstreaming EBA. However middle chain actors remain underrepresented in research, despite their powerful role in shaping procurement standards and supply chain practices. Understanding how they perceive and engage with EBA is therefore critical to ensuring that sustainability goals are translated into actionable outcomes across the food system.

In countries like Sweden, where food value chains are highly integrated, examining the attitudes and decision making processes of middle chain actors is essential. Understanding their perspectives can uncover the barriers and enablers to sourcing from EBA compliant producers and help identify practical solutions to scale sustainable agricultural practices across the food system.

1.2 Research Aim & Research Questions

To investigate the drivers, challenges, and opportunities influencing middle chain actors' willingness to source raw materials from ecosystem based agriculture, with the

goal of identifying suggestions to promote sustainable practices in the agri food supply chain.

This paper addresses the research questions,

1. What are the main drivers that encourage middle chain actors to buy raw materials from EBA ?
2. What challenges and opportunities do middle chain actors see in selling products from EBA?

1.3 Limitations

Since the study focuses on the Swedish Food industry, the results may not be truly applicable to other countries with distinct market structures and regulatory frameworks (Bryman & Bell, 2018). The depth of the research may be limited by data restrictions, when it comes to the practical situation of adopting EBA. Additionally, other elements like cultural norms or the perception of customers are not thoroughly investigated, even though the logistic and economic challenges are highlighted. Further studies can track how sustainability laws and technology are constantly changing and how the developments can make an influence on sourcing practices (Bryman & Bell, 2015).

The rest of this study is arranged according to a few chapters. Chapter 2 discusses the origins and growth of EBA in the Swedish market, while chapter 3 reviews relevant research on middle chain actors and Chapter 4 discusses further about the theoretical frameworks included in the study. Chapter 5 explains the research methodology, detailing the qualitative approach and data collection techniques used for the study with reasoning for choosing the respective sampling techniques and the practicality of choosing the methodology. Chapter 6 analyzes the results and findings, focusing on the key drivers, challenges, and opportunities that shapes the middle chain actors' purchasing decisions in order to strengthen the results for the respective two research

questions. Chapter 7 discusses the broader implications of these findings for the sustainable food systems and provides the targeted recommendations and conclusions for policymakers and industry actors.

2. Background of EBA in Swedish Market

2.1 The Transformation of Swedish Agriculture – Path to Sustainability

Significant conversions have been faced by the Swedish agriculture system throughout the 20th and early 21st centuries. Based on a range of environmentally appropriate and ecologically sound farming techniques, modernised policies and market forces started to adjust it more and more (Saifi & Drake, 2008; Björklund et al., 2012). By using inorganic fertilisers, insecticides, and fossil fuels, these developments increased agricultural productivity, but they also led to environmental degradation.

In the sector of environmental regulation Sweden has been recognized as an early leader. Banning Dichlorodiphenyltrichloroethane known as DDT and imposing strict rules and regulations related to the pollution controls in the 1970s reflected the growth of the public concern over environmental harm (Kleijn et al., 2011). Organic farming rose in the 1980s and 1990s, spurred by ecological considerations in policy. By 2000, approximately 10% of Swedish agriculture was organically certified (Basnet et al., 2023).

Despite the increasing environmental awareness, national and EU agri policies have significantly arisen in centralized decision making, creating a disconnection between farming practices and the local communities which affect them. Municipalities are expected to take responsibility for environmental stewardship, yet they often lack the authority to influence agricultural decisions in meaningful ways (Saifi & Drake, 2008). In recent years, there has been a significant renewed interest in a more localized food system where the interest is driven by concerns regarding the biodiversity loss, climate change and vulnerabilities in global supply chains (Rockström et al., 2020).

In addition to spreading sustainability, strengthening regional food networks and integrating agriculture with local systems and consumers will be seen as a means of bringing food production closer to the community in terms of need and value.

2.2 Sustainability Trends in the Swedish Food Market

Sustainability is known as one of the defining features of Sweden's food sector, which is shaped by daily choices of consumers, the public policy guidance and the demand in the marketplace. Through tools like subsidies, tax incentives, and certification schemes such as KRAV and the EU Organic label, the Swedish government has helped steer agriculture toward more environmentally responsible practices (European Commission, 2022; KRAV, 2023).

2.3 Sustainable Sourcing and the Role of Middle Chain Actors

The Swedish food system plays a growing role by the consumers in the market. Environmental issues are more concerned by many consumers and view their food choices deeply as a solution to the biggest issues such as climate change. Statista, 2001 shows that over 70% of the consumers believe that ecological food is more important for addressing climate issues and 72% mention that sustainability influences their food purchases (Business Sweden, 2023). With labels like KRAV becoming a familiar sight on supermarket shelves, a shift in attitudes has helped to drive the demand for organic and eco label products (Knutsson et al., 2024).

However, Knutsson et al., 2024 explains that while there is awareness of sustainability, more holistic approaches like EBA remain unknown to the public. Even though the eco labels are widely identified, the deeper ecological practices which define EBA have not yet mainstreamed the awareness or purchasing habits.

Middle chain actors have a responsible part to play in sustainable agriculture to support the ideas. Major food retailers such as ICA, Axfood and Coop have very important power in the supply chain and set the sourcing standards together (FAO, 2020; Walton, 2023). While some middle chain actors took steps towards sustainability by reducing emissions or sourcing certified products, EBA is largely missing from its networks.

Various reasons explain this difference and it is identified that higher costs, logistical barriers and the lack of certification make it difficult for retailers to justify the EBA adoption. Retailers also face continuous pressure to offer low prices, maintain the supply of the products in the market and meet consumer requirements which can overlap with ecological practices like EBA (Caleffi et al., 2023; Rockström et al., 2020). To truly support farming methods like EBA, there needs to be a shift in how sustainability is built into the logic of procurement, market incentives, and governance across the food system (Messner et al., 2021).

2.4 New Agricultural Policy 2023–2027 and Its Impact on Sustainable Farming

The European Union's Common Agricultural Policy (CAP) 2023–2027, with an allocation of approximately SEK 60 billion for Sweden, is positioned as a strategic tool for enhancing sustainability and resilience in agriculture. It provides a strong framework for creating a food system that is more resilient and climate friendly (Jordbruksverket, 2023).

However, critically this can be argued that the CAP still falls short of its ecological promises. Many argue that its goals are too broad and unevenly applied and promote intensive farming practices (Pe'er et al., 2019; Matthews, 2018). Although the CAP encourages greener farming, much of the financial support lies linked to land area, which can make significant disadvantages to more innovative operations like EBA (Batáry et al., 2015; Hart, 2023).

Pe'er et al. (2020) criticize CAP for its complexity in administration and for lacking the targeted incentives that would efficiently support the development in innovative and sustainability related practices. Although CAP theoretically accommodates ecological approaches, its practical implementation is hindered by limited meaningful support for initiatives.

Therefore, it must be implemented with the intention of making more than sustainable goals but must actively support those working towards it for creating meaningful change, especially those who are trying to farm in ways that rebuild ecosystems and serve local communities (Rac, Erjavec and Erjavec, 2020).

3. Literature Review

3.1 Ecosystem Based Agriculture (EBA)

Ecosystem Based Agriculture combines environmentally friendly ideas into farming methods to protect the natural resources, enhance environmental sustainability over a long period of time. EBA concentrates more on how to incorporate ecological knowledge to increase food production while maintaining the levels of ecosystem services such as water management, carbon storage, and healthy soil, as explained by Altieri (1999). EBA aims to strike a balance between ecological aspects and agricultural productivity (Björklund et al., 2012). Promoting climate resilience, reducing environmental degradation will guarantee long term food security (FAO, 2017, Björklund et al., 2012).

EBA and Organic Agriculture go hand in hand but with some distinct differentiations. Both share environmental aims and goals but take different approaches to farming. Organic Agricultural farming practices need strict certification while EBA is more flexible and focuses on local environmental conditions without needing official approval through certification (Reganold and Wachter, 2016). Commonly, both contribute towards the sustainability, EBA takes a wider and more comprehensive integration of natural solutions whereas organic agriculture aims on accomplishing a structure criteria to cater the market demand for certified products (Abdourahamane Illiassou and Oeba, 2020)

Apart from the benefits, EBA remains limited in industrialized agriculture due to several challenges such as need for more knowledge intensive management, potential yield variability compared to conventional farming systems (Gurr et al., 2016). At the same time subsidies favouring industrialized farming practices may hinder the adoption of EBA (Pretty et al., 2018).

While EBA reduces the dependence on industrial inputs and promotes as a sustainable approach (Björklund et al., 2012; FAO, 2017), practical implementation faces significant challenges such as economic policy barriers and potential yield variability (Gurr et al., 2016; Pretty et al., 2018), raising questions whether about EBA can work well on large scale feasibility compared to conventional and certified organic farming systems.

3.2 EBA Benefits towards the Environment

Reducing chemical inputs is one of EBA's primary benefits, according to Björklund et al. (2012), who also point out that synthetic pesticides and fertilisers are a significant part of conventional agriculture, contributing to soil erosion, water pollution, and adverse health effects for both farmers and consumers. The demand for chemical inputs can be decreased by using organic alternatives such as compost, crop rotation, and integrated pest management (Björklund et al., 2012 & Montemurro et al., 2010). Furthermore, He *et al*, (2023) intensively explains that these chemical fertilizers can lead to vast emissions of greenhouse gases. Practicing EBA like concepts will not only lower the chemical input production costs but also improve the soil health and maintain the water quality (Caleffi et al., 2023).

EBA increases ecosystem stability and productivity by encouraging different species together through the promotion of agroforestry, polycultures, and habitat restoration (Björklund et al., 2012) ultimately leading to the conservation of biodiversity. These strategies lowers the probability of crop failure, controls pests naturally while maintaining ecological processes to promote food supply (Caleffi et al., 2023). Further, Caleffi *et al*, (2023) states that various EBA practices will lead to a balanced environment which promotes long term sustainability compared to monocultures.

Climate resilience has been identified as one major benefit of EBA, where farmers can overcome adverse environmental conditions like droughts by improving the soil, adopting water conserving strategies (Björklund et al., 2012). Further cover cropping

and agroforestry like practices has immensely contributed towards soil moisture retention and reduction in soil erosion (Caleffi et al., 2023). All these strategies will help to keep farming steady, even in adverse environmental conditions, making EBA a great solution to ensure long term food security.

3.3 Role of Middle Chain Actors in Promoting EBA

Food processors, distributors and wholesalers like middle chain actors play a major role in the process of shaping agri food systems worldwide. Being in the middle of the primary producer and consumers, these actors can make a huge impact on the cultivation methods, availability of the products on time to the market (Björklund, 2012). Purchasing choices of the middle chain actors can greatly affect the success of the market of eco friendly products and about the financial feasibility of sustainable agriculture methods (Mvungi et al., 2024). Use of new technology, applying high quality standards with updated procurement rules and regulations can make farming environmentally responsible as it supports the techniques aligned with EBA (Björklund et al., 2012).

Even though there is an increased recognition of EBA as a remedy to biodiversity loss, greenhouse gas emissions (FAO, 2020), most researchers mainly focused on the aspects of producers and consumers by disregarding the influence of middle chain actors (Walton, 2023).

Nowadays many middle chain actors are practising sustainability in their sourcing decisions, focusing mainly on protecting the environment will lead to the contribution of reducing the carbon footprint and advancing EBA adoption across the food value chain (Grabs et al., 2024; Ruben & Dijkxhoorn, 2022; Björklund et al., 2012). With the understanding of the evolving role of EBA adoption is significantly important to develop the strategies to expand sustainable farming methods around the globe.

3.4 Drivers Influencing Middle Chain Actors' Adoption of EBA Practices

Implementation of EBA in the agri food industry has many forces and one of the main forces is identified as regulations and laws (European Commission, 2024). At the same time government and international organizations promote EU Farm to Fork strategy intensively as it encourages environmentally friendly supply chains (European Commission, 2020).

Using EBA is supported and promoted by certifications that emphasize sustainability standards and organic labeling. These certifications aim to prove that farms follow environmental rules, helping them compete more effectively in the market (Vignola et al., 2015). Along with smallholder farmers, businesses may still struggle to meet these requirements as they need extra financials and technical guidance (Mvungi et al., 2024).

Due to extra work procedures, requirement of certifications and ecofriendly practices, purchasing from EBA based companies may charge higher manufacturing costs (Björklund et al., 2012). Ultimately, this will increase the purchasing cost for middle chain actors who struggle to balance customer demand for low prices with their sustainability goals (Hao et al., 2024). Many middle participants who are unable to absorb these extra expenses without passing on to the final consumer may hinder the ability to be a competitor in the market (Boufous et al., 2023).

According to Pouta et al., (2021) rising consumer knowledge and demand for sustainable food products play a vital role in encouraging middle chain actors toward EBA adoption. Consumers increasingly choose ecofriendly and ethically sourced products, prompting retailers and processors to include sustainability into their procurement strategies (ibid). Hao et al., (2024) explain that the final customer who has a high level of understanding may be ready to pay a higher price for food produced with sustainable practices. Middle chain actors are obliged by this immense change in

consumers, to give sustainable sourcing top priority by reducing the environmental impact and encouraging the ethical supply chains (Grabs et al., 2024).

Consumer Knowledge of EBA is still considered to be at a low level, despite the growing desire for ecological products (Pouta et al., 2021). Distinguishing between EBA products and traditional alternatives may be challenging to consumers due to unclear labelling and certification procedures (Grabs et al., 2024). Additionally, consumers lack knowledge to interpret why they should pay a higher price for the EBA based foods, which slows down the market adoption (Broch et al., 2013).

The implementation of EBA processes also fits long term financial benefits for middle chain actors. Sustainable sourcing and manufacturing methods could lead to high end market access, better efficiency, and cheaper input prices (Boufous et al., 2023).

Financial incentives such as investment funds, carbon credits and subsidies help out middle chain actors to incorporate sustainable practices into their business operations even more than before (Broch et al., 2013). Since certain companies remain mindful of the large initial costs related to EBA model changes it is needed to encourage broad adoption and clearer financial mechanisms (Mvungi et al., 2024).

Companies are aware that implementing sustainable practices promotes the reputation, which leads to attracting eco conscious consumers, and fulfil stakeholder demands (Olbe, 2024). In order to compete and satisfy global environmental targets, middle participants are progressively incorporating sustainability goals into their business plans (Grabs et al., 2024). Moreover, Supply chain openness and ethical purchasing has led to the increase of the trust between consumer and the company, which leads to long term market stability (Ruben & Dijkxhoorn, 2022). Apart from the potential long term benefits of consumer loyalty and adhering to the global sustainable goals (Grabs et al., 2024), many industries would like to enjoy short term profitability in order to meet the short term goals (Haessler, 2020).

While some businesses may participate in "greenwashing," making cosmetic claims about their environmental efforts without implementing substantial change (Lyon & Montgomery, 2015), others face financial and operational hurdles while moving to sustainability (Porter & Kramer, 2017). Moreover, while ethical sourcing can build consumer trust, demand for sustainable products varies by region and income level, meaning companies may still prioritize price and efficiency in competitive markets (Chatterjee et al. 2022). Thus, although businesses may recognize the value of sustainability, they often face significant barriers including financial, regulatory, and logistical problems that prevent widespread adoption of sustainable practices (Bansal & Roth, 2000; Ruben & Dijkxhoorn, 2022).

3.5 Challenges Faced by Middle Chain Actors in Sourcing from EBA

One of the significant challenges identified for middle chain actors is the irregular and limited supply of EBA products (Grabs et al., 2024). EBA promotes diverse cropping systems that may not yield continuously throughout the year, unlike large scale industrial agriculture, which typically relies on monoculture for consistent and efficient production. This unpredictable nature makes it challenging to guarantee a consistent supply to satisfy the needs of the consumers (Mvungi et al., 2024).

The reliance on organic inputs and the labour-intensive nature of Ecosystem-Based Agriculture (EBA) contribute to higher production costs (Boufous et al., 2023). These added expenses are often passed along to middle-chain actors, who face difficulties remaining competitive particularly in markets where consumers are highly price sensitive. In addition, investments in cold storage, specialized transportation, and infrastructure tailored to EBA products place further financial pressure on these companies. Without substantial government support or targeted funding, many actors may opt to stick with conventional, lower cost production models, despite the environmental advantages offered by EBA (ibid).

As the current rules still support traditional farming, EBA finds it challenging to become a part of mainstream supply chains. Policies on things like trade, food labels, and subsidies usually benefit large scale industrial agriculture, putting EBA at a disadvantage (Olbe, 2011). It's also harder to enter the market because there aren't clear certification systems or specific sustainability standards for EBA products. For example, while organic certification is well known, EBA goes beyond that and doesn't always fit into existing rules. Without clear support or simpler regulations, it can be tough for middle chain actors to include EBA products in their offerings (ibid).

3.6 Opportunities gained by Middle Chain Actors in Sourcing from EBA

As consumer preferences shift towards sustainability, middle chain operators who rely on EBA are better positioned to meet these needs. Products produced using environmentally responsible methods such as reduced pesticide use, agroforestry, and crop rotation align with consumer preferences for products that benefit the environment and society, and consumer demand for sustainably sourced products has become a significant driver of market growth in sectors such as food and beverage. Middle chain actors can meet this requirement by establishing long term customer loyalty and cultivating relationships with environmentally concerned consumers (Zamuz et al., 2021).

Middle chain actors can take advantage of the rising demand for sustainable food by linking EBA farmers with high value markets. More and more consumers want products that protect nature and help the climate, which leads to that middle chain actors can charge more for certified ecofriendly products (Bacon et al., 2012). They can also earn extra income by joining new markets like carbon credits or biodiversity programs, not just relying on regular farming.

Sustainability factor being the central factor in consumer decision making has led to increase the brand image of the middle chain actors who source from EBA. Companies

who source from environmentally responsible producers have gained consumer trust (Nuttavuthisit and Thøgersen, 2017). Further this pattern of sourcing demonstrates the middle chain actors' commitment to social responsibility. Further Nuttavuthisit and Thøgersen, (2017) underscores that businesses with strong sustainability profiles attract loyal customers who value ethical practices. Moreover, eco labeling and certification from recognized bodies can enhance brand value and customer satisfaction.

Governments and other international organizations have been offering financial support at encouraging the adoption of sustainable farming practices. Middle chain actors' benefit from these policies by sourcing from ecosystem based farms. The CAP gives financial support to promote ecofriendly farming. This can help businesses that work with certified sustainable farms by reducing their costs and encouraging long term environmental practices (European Commission, 2022).

3.7 Research Gap

The role of middle chain actors remains underexplored in the recognition of EBA as a sustainable alternative. While extensive research exists on farmers' motivations (Illiassou & Oeba, 2020; El Bilali et al., 2019) less attention is given to how middle chain actors make an impact on the supply and demand of EBA based raw materials. These actors connect with producers and consumers by bridging the gap and making their willingness to source EBA products important for measuring the sustainable food systems. However middle actors face many challenges such as economical, logistical and regulation related to supply chain disruptions which will lead to perceived risks such as price changes and inconsistent supply may hold back their engagement (Garnett et al., 2013; Hedlund et al., 2022).

Additionally, empirical data on market opportunities for EBA is limited even though the consumer demand increases for sustainable products. Although sustainability related commitments are strong, research on the involvement of middle chain actors

remains limited in popularity (Ruckelshaus et al., 2020). Filling these gaps will help to better understand what affects the use of EBA practices, which can support the creation of policies and business plans that encourage sustainable food systems.

4. Theoretical Framework

4. 1 Stakeholder Theory

Stakeholder Theory, first introduced by Freeman in 1984, suggests that businesses are not separate from the society around them but they are inter connected to and affected by many different groups (Freeman, 2005). Instead of focusing only on shareholders, which is the major primary stakeholder group known, this theory highlights the importance of considering the needs and interests of others too, like customers, suppliers, government bodies, and the society (Donaldson & Preston, 1995).

In the context of EBA, middle chain actors are key stakeholders in the agri food supply chain, other than farmers and consumers (Mitchell et al., 1997). To understand the willingness to adopt EBA practices requires on how to identify the drivers, challenges and opportunities from the perspective of the stakeholder.

According to Mitchell et al. (1997), there are three essential characteristics: power, legitimacy, and urgency that can be used to identify stakeholders. Legitimation is the perceived right to participate in decision making, urgency is the need for quick attention to their concerns, and power is the ability of a stakeholder to influence decisions. Because they influence market demand through their purchases, middle chain actors in ecosystem based agriculture (EBA), including food processors, wholesalers, and retailers, have a lot of leverage.

Meanwhile, farmers and environmental organizations have legitimacy as they promote sustainable farming practices and advocate for environmental protection. At the same time, consumers play a crucial role by creating a sense of urgency as more people demand sustainable food products, businesses must respond by sourcing from EBA to remain competitive (Freeman et al., 2005).

Stakeholders in the food supply chain can be classified into primary and secondary stakeholders. Primary stakeholders are those who have a direct impact on middle chain actors' sourcing decisions. These include farmers, who produce raw materials; regulators, who create policies and enforce sustainability standards; and consumers, whose purchasing preferences influence market demand all within the context of the food value chain. What primary stakeholders do and decide has a direct impact on how middle chain actors get and distribute food (Clarkson, 1995).

On the other hand, it is clear that secondary stakeholders do not have direct control and power over sourcing decisions but are still considered important in shaping industry trends and policies. Governmental organizations, certification bodies and advocacy groups can be identified as secondary stakeholders who promote sustainability, raise awareness and make influence on regulations. By engaging with both primary and secondary stakeholders can be helpful to successfully integrate sustainable sourcing practices into the food supply chain (Freeman et al., 2005)

Stakeholder engagement and interdependence are crucial components of Stakeholder Theory, which highlights that companies function within a network of interconnected stakeholders rather than operating alone (Donaldson & Preston, 1995). In order to connect primary producers' farmers who engage in EBA with ultimate markets retailers and consumers middle chain operators are essential. EBA's financial sustainability has a direct effect with the sourcing decision of middle chain actors since they either open up market opportunities for farmers or strengthen the obstacles to sustainable farming. The engagement with middle actors ensures whether sustainable practices can scale, while interactions with retailers and consumers shape demand for EBA based products (Donaldson & Preston, 1995).

Additionally, the collaboration with government bodies, NGOs influences the regulatory and financial environment which facilitates or hinders sustainable sourcing with the growth of the consumer awareness of prioritizing ethical sourcing which can gain a competitive advantage (Donaldson & Preston, 1995). Value creation in

sustainable supply chains may lead to more than just economic benefits but includes environmental resilience, biodiversity conservation and ethical labour practices. This practice will build stronger and more resilient supply networks. When it comes to connecting EBA primary producers with the final consumer, middle chain actors play a major role (Freeman, 2005). These will make a huge influence on sustainability outcomes. As consumer awareness of sustainability develops, businesses that prioritize ethical sourcing gain a competitive advantage by aligning with evolving market expectations and earning consumer trust (Mitchell et al., 1997).

4.2 SWOT Analysis

SWOT analysis is considered to be a planning tool used to identify the strengths, weaknesses, opportunities and threats of a decision or a system (Gurel & Tat, 2017). Both internal aspects like how well a business operates and its costs and external factors such as market trends and government rules can be thought of when applied to the context of EBA.

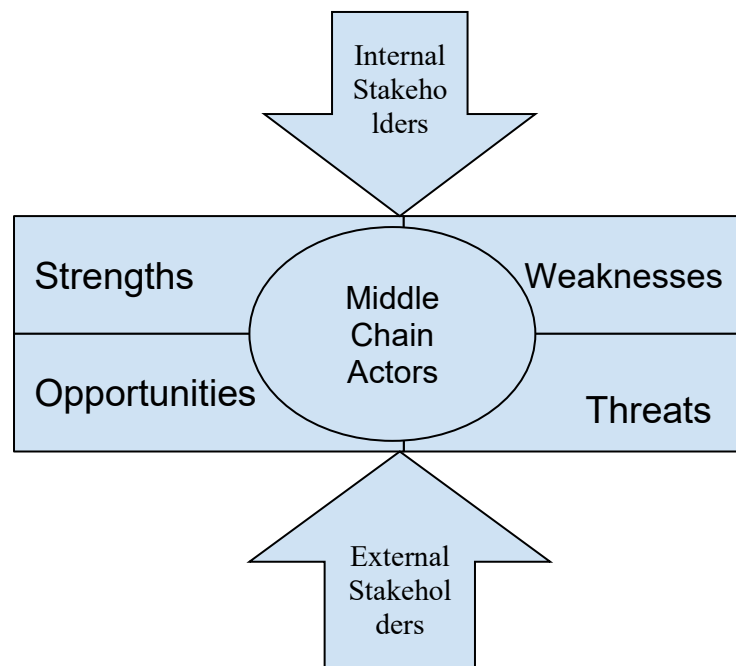


Figure 1. Stakeholder influence on EBA Sourcing (own work)

Figure 1 above describes the inter relationship on how the drivers to EBA sourcing, challenges to EBA sourcing and opportunities for EBA sourcing effects on EBA sourcing decisions through stakeholder engagement and value creation.

4.3 Theoretical Synthesis

With this collective knowledge, the theoretical framework for this study is structured around four interconnected constructs known as stakeholder engagement, value creation, barriers and incentives. Middle actors interact with different groups of stakeholders whose interests shape their willingness to adopt EBA purchasing (Freeman, 2005; Ruben & Dijkxhoorn, 2022). These decisions are affected by both economical and ethical value considerations while balancing sustainability goals with profitability goals (Grabs et al., 2024). There are many significant challenges such as logistical drawbacks and cost pressures, but these can be overcome by governmental support, market incentives and growing consumer demand towards environmentally friendly products (Caleffi et al., 2023; Pouta et al., 2024). This framework provides a comprehensive overview to analyze how middle chain actors overcome the complexities of sustainable sourcing (Hao et al., 2024).

By applying stakeholder theory to the study of EBA sourcing, this study combines the knowledge that middle chain actors are not only just intermediaries but also active participants in the sustainable food systems (Caleffi et al., 2023). This analysis emphasizes that stakeholder engagement involves more than just communication but also requires negotiation and aligning of different interests. This party is responsible for striking a balance between other stakeholders (Ruben & Dijkxhoorn, 2022).

This study builds on earlier research by showing that the adoption of EBA practices is not just about individual business choices, it also depends on policy support, cooperation across the industry, and changes in consumer behavior (Grabs et al., 2024). In doing so, the framework not only explains what affects sustainable sourcing but also

gives a clear structure for finding ways to help middle chain actors play a bigger role in expanding EBA practices.

According to the aforementioned figure 1, by combining SWOT analysis with stakeholder theory, a clear picture can be obtained on how different persons and groups affect or are affected by these factors. For instance, high demand from consumers for environmentally friendly products is an opportunity, but also shows pressure from an important group of stakeholders (Mitchell et al., 1997). Government support towards sustainable practices is an identified strength, showing the backing of policy makers. On the other hand, high certification costs are a weakness that show the economic challenges middle chain actors have to face, especially since they often carry the costs of becoming sustainable in their business practices (Freeman, 2005; Donaldson & Preston, 1995).

So, when utilizing the stakeholder theory to look at the results of a SWOT analysis, it not only tells what the business challenges and chances are, but also who is involved and how they are affected. This makes the strategy more complete and useful for improving sustainability in the food system (Ruben & Dijkxhoorn, 2022; Grabs et al., 2024).

5. Method

5.1 Research Philosophy

This chapter outlines the method used to investigate the key drivers, challenges, and opportunities influencing middle chain actors' willingness to source raw materials from EBA in Sweden. By examining their motivations and decision making processes, this study focuses to investigate the drivers, challenges, and opportunities influencing middle chain actors' willingness to source raw materials from EBA for promoting sustainable sourcing practices within the agri food supply chain.

Interpretivism as the epistemological stance is based on the view that reality is shaped by social contexts and influenced by how individuals interact with their environment. This study adopts an interpretivist approach because it aims to understand how middle chain actors make decisions and navigate their roles within both social and business settings. (Bryman, 2016).

Berger and Luckmann (1966), explained that a constructionist ontological viewpoint views reality which is shaped by social interactions, interpretations and shared meanings rather than an objective or independent entity. According to Guba and Lincoln's (1994) constructionist framework, the selections made by middle chain actors are framed as being impacted by relationships, life experiences, and the larger market context. With the continuation of the discussions and negotiations, opinions of the possibilities and advantages of EBA develop and change. This will provide an important insight into how middle chain actors formulate their conception of sustainability and adjust it to suit business goals and aims.

The idea of stakeholders, which highlights the need for enterprises to take into account not only the economic interest but also the environmental and social consequences (Freeman, 2005; Schaltegger & Wagner, 2008; Jones, 2017). The scope of stakeholder theory has grown to help organisations incorporate sustainability into their decision-

making procedures. A structured method for determining if EBA is feasible among middle chain actors is provided by SWOT analysis, a strategic tool for analysing external possibilities and threats in addition to internal strengths and weaknesses (Gurel & Tat, 2017).

Middle chain actors who operate in interconnected networks are affected by both farmers and consumers through the sourcing decisions. Interpretivism allows for the analysis of these relationships within the particular Swedish environment, where sustainability policies and market trends influence decision making (Eriksson and Kovalainen, 2015). This study uses qualitative methods such as in depth interviews and thematic analysis to capture the rich, context dependent insights required to understand the constraints, drivers, and opportunities impacting middle chain actor's engagement with EBA (Creswell & Poth, 2016).

To gain a better understanding of how middle chain actors engage with, and influence the adoption of EBA in Sweden, this study adopts a qualitative research approach. This method is especially important when exploring complex social behaviours that are difficult to capture alone with the numerical data (Creswell & Creswell, 2017). Through in-depth interviews, this study is able to gather rich, detailed perspectives that explore the motivations, challenges, and views of those working within the food supply chain, insights that would likely be missed through surveys alone (Patton, 2002).

This study follows the inductive reasoning approach which makes the understanding developed from data collected through the interviews rather starting with the hypotheses. During the analysis, many insights and themes emerged and allowed the theories to build from the participants' experiences and perspectives undergone in real life (Bryman, 2016).

A multiple case study design is used to explore the view of the middle chain actors. Various kinds of organizations responded by revealing both the commonalities and variances can be compared through this method (Yin, 2009). A thorough understanding of how decisions are made in real world settings are helpful to gain through the

particular case studies (Eisenhardt & Graebner, 2007). This strategy makes it possible to examine people's thinking patterns, attitudes, and experiences in greater detail, which is something that structured surveys may find difficult to do (Patton, 2002). This approach is ideal for examining the elements influencing the decisions made by food processors and other middle chain participants, as they often have a powerful say in how sustainable strategies are applied (Denzin & Lincoln, 2011).

In this study, we used semi structured interviews as the main method for collecting data. This format provided a balance between guiding the conversation with key questions and leaving room to follow up on new and important themes as they came up. It allowed participants to speak in their own words while giving us the chance to better understand their perspectives and experiences (Horton et al., 2004).

5.2 Course of Action

5.2.1 Sampling of Respondents

Purposive sampling is utilised to guarantee that participants have relevant experience with supply chain management and sustainability (Palinkas et al., 2015). According to Bryman and Bell (2015), despite being a convenience sampling approach, Snowball sampling is also employed to identify middle chain actors involved in EBA adoption, who may be difficult to reach using traditional sampling approaches. Using this method, the researcher initially connects with a small group of study participants. By connecting them to others who match the study's qualifications, the original volunteers help us to reach a wider audience. Initially, the research aimed to include a broad range of food processing companies in Sweden that engage in EBA practices. However, during the preliminary data collection phase, it became evident that many small scale processing companies are subsidiaries or operate under the strategic direction of a few dominant market leaders. As such, the decision was made to focus interviews on four key market leading companies that significantly influence sourcing practices across the

sector. Semi structured interviews have been performed online, providing for flexibility and a thorough exploration of participants' viewpoints (Bell & Bryman, 2022).

A select group of Swedish food processing companies participated in this study, all of which are recognized leaders in sustainable sourcing within the national agri-food sector. These firms were purposefully chosen based on their significant market share and influence over supply chain practices in Sweden. According to industry reports, a small number of market leading processors account for a substantial proportion of food distribution and procurement activities in the country, making them strategically positioned to shape sourcing standards and innovations such as EBA.

In total, four individuals from different companies were interviewed. The companies were selected to represent a range of sustainability approaches and market positions within the four Swedish food processing companies. All the four interviews were conducted face to face via online. Face to face interviews were prioritized to allow for deeper conversation and follow up questions to gain deeper insights.

It is important to acknowledge that this study focused exclusively on large, market leading companies and does not expose the full diversity of the Swedish food system. Small and medium sized enterprises (SMEs), primary producers, retailers, and other stakeholders were not included in the sample. Consequently, the sector is exposed to the viewpoints and procedures of major supply chain actors who possess more resources, visibility, and influence. This will only depict a small picture of the larger agri food landscape sector, even though it contains valuable information about their contribution to sustainability and EBA adoption.

The companies that took part in this study are important actors in Sweden's food retail and processing sector. Each company showed a different level of commitment to sustainability in how they source and operate. One company focuses on responsible sourcing through its logistics and purchasing systems. Another targets the organic and health conscious market, offering environment friendly and nutritious products. The

third and fourth work in the niche organic sector and follow strict certification rules, with a focus on biodiversity and soil health.

Although the sustainability efforts of these companies' match Sweden's national goals for a sustainable food system (Hansson et al., 2024), a closer look reveals some of the challenges associated. For instance, certifications are often used to show environmental responsibility, but because of high costs, they can also create barriers for small farmers (Zamuz et al., 2021). Also, while many companies talk about sustainability, some of this may be more about maintaining image to the world than concerning the real impact, what critics call "greenwashing" (Dauvergne & Lister, 2013). Still, the respondents in this study showed a fairly strong strategy for including ecosystem based practices in their supply chains, driven by both market trends and their internal sustainability goals.

The inclusion criteria ensure that respondents have relevant knowledge and experience in the EBA supply chain in this study. Individuals must be directly involved in procurement, sourcing or sustainability strategy because they are playing a critical role in decision making about sustainable farming practices (Creswell and Creswell, 2017). Secondly respondents should be familiar with organic, sustainable, or ecosystem based agricultural goods, as this knowledge is necessary for offering educated insights into the challenges and potential connected with EBA adoption (Patton, 2002). In order to capture a varied variety of perspectives finally, the study includes respondents from several food business segments such as wholesalers, retailers, and food processors, resulting in a more thorough understanding of supply chain dynamics (Maxwell, 2013).

5.3 Thematic Analysis

Thematic Analysis (TA) is a method which is widely used in identifying, analyzing and reporting themes within data. It is well known for its flexibility and applicability across various disciplines and the context in social sciences (Braun & Clarke, 2006). The method involves a systematic process of coding data, generating themes, and

interpreting these themes in relation to the research question. Thematic analysis is particularly valued for its accessibility to novice researchers and its ability to provide rich, detailed, and complex accounts of data (Nowell et al., 2017).

Some scholars have raised the question about the concerns that because thematic analysis is so flexible, it might be used inconsistently, which could affect how trustworthy or valid the results are (Guest et al., 2011). Even so, TA continues to be a go to method in qualitative research, largely because it works well with a range of theoretical approaches, whether you're using a more structured, deductive method or a more open-ended, inductive one (Braun & Clarke, 2019). More recently, there's been a strong push towards scholars to be clearer and more reflective about the choices they make like what theories they're using and how they're analyzing their data through theory (Byrne, 2021). A powerful and flexible way to explore and understand complex human experiences can be gained through Thematic Analysis.

Thematic Analysis is thought to be a suitable technique for finding themes in qualitative data, particularly when determining the opportunities, challenges, and drivers that can significantly impact middle chain actors' capacity to procure raw materials from EBA. Thematic analysis is carried out using Braun and Clarke's (2006) six-phase framework, with the aid of ATLAS.ti to help code, organise, and visualise data in order to find themes related to the previously developed research questions regarding middle chain actors' involvement in EBA adoption. This method offers a methodical yet adaptable means to investigate the intricate shifts in middle chain players' involvement with EBA, providing useful information for sustainable food systems.

5.4 Quality Criteria in Research

A well established qualitative research criteria can be used by Guba and Lincoln, 1994 in order to ensure the study's thoroughness and reliability. Prolonged Engagement maintains credibility by allowing enough time in the study setting to create trust and

obtain deep insights into the subject (Patton, 2015). By providing the full descriptions of the research and its context, transferability will allow the findings to be applied to comparable supply chain contexts (Merriam, 1998). Dependability is achieved through rigorous recording of research methodologies and procedures, which allows other researchers to duplicate the work (Shenton, 2004). Finally, confirmability is improved by reducing researcher bias through audit trails and independent coding verification, ensuring that findings are based on data rather than personal interpretations (Nowell et al., 2017).

To ensure the quality of our research, we implemented several strategies based on established qualitative criteria. We maintained prolonged engagement by conducting in depth, face to face interviews with market leaders from four different companies, allowing us to build trust and gain a comprehensive understanding of the subject. Transferability was supported by providing detailed descriptions of the research setting, including the selection of prominent companies, which allows our findings to be applicable to similar contexts. To ensure dependability, we meticulously documented all methods and procedures, including the use of ATLAS.ti, a sophisticated software tool for data analysis, rather than relying on manual coding, which enhanced the consistency and transparency of our analysis.

5.5 Reflexivity and Researcher's Role

In qualitative research, the researcher's role is integral to the process, and reflexivity will be maintained throughout the study. Reflexivity refers to the researcher's awareness of their own biases, perspectives, and influence on the research process (Finlay, 2002). Biases can subtly shape how data is interpreted, so steps will be taken to reduce their impact. These include member checking, where participants are invited to review and confirm the findings, and triangulation, which involves using different data sources or perspectives to enhance the study's credibility and reliability (Flick, 2018). The researcher's perspectives are shaped by background, experiences, and worldview which naturally influence how data is approached and which themes are

emphasized. Acknowledging these perspectives brings greater transparency to the research process and helps readers understand the lens through which the data is interpreted. Additionally, the researcher's influence on how questions are framed to how participants are engaged and how analytical decisions are made also can affect the direction of the study. Ongoing reflexivity will be maintained to remain mindful of these dynamics and ensure the research is conducted with care, openness, and integrity (Flick, 2018).

5.6 Ethics in Research

The work follows ethical research criteria in accordance with Swedish regulations (Swedish Research Council, 2017). Anonymising all responses ensures confidentiality and protects participant names and business sensitive information (Creswell & Creswell, 2017). Participation is fully voluntary, and participants have the choice to withdraw from the study at any time without penalty (Bryman & Bell, 2015). Furthermore, gaining ethical clearance and accurately reporting findings ensures credibility and integrity in sustainability research (Resnik, 2018).

5.7 Limitations

Qualitative research offers valuable results into complex and context specific issues, but it also has its disadvantages. One major limitation is that its findings are not always easy to generalize to a larger context. Since this study focuses on a small, selectively chosen group of middle level actors in Sweden's agricultural supply chain, the findings may not show what's happening in other regions or across the whole agricultural sector.

However, the purpose of qualitative research is to investigate topics in depth rather than to produce broad generalizations. The insights gained from this study will help provide a deeper, more detailed understanding of how Ecosystem Based Agriculture

(EBA) is being adopted in different contexts (Patton, 2014). Another consideration is that qualitative research is influenced by the perspectives of both the researcher and the participants. While strategies like triangulation and reflexivity will be used to reduce bias, some level of subjectivity is unavoidable. Rather than removing it, the aim is to approach it thoughtfully and transparently (ibid).

Easterby Smith et al., (2015) explain that purposive and snowball sampling is the deliberate selection of subjects or objects for a study. A thorough examination within a particular environment is made possible by the focus on Sweden and certain processing companies. The study had a qualitative nature and used an inductive coding approach where the researchers' interpretations may influence the categorization of themes that will potentially impact the reliability of the findings. As explained by Bell et al., (2018) to completely understand that the results might not accurately reflect the global processing industry or be applicable to businesses in other nations, it is imperative to acknowledge the selection of Sweden and these companies.

In the study's design, methodologies, interpretation of data, or researchers' opinions, among other things Biases might be occurred. As well as while exposing researchers' biases can enhance the reliability of study conclusions, the purposive sampling method may introduce biases by potentially limiting the representation of diverse viewpoints within the processing industry, and the reliance on interviews, though valuable, can be time consuming and may restrict the depth and breadth of data collection and analysis (Bell et al. 2018).

6. Results

A thematic analysis was carried out using ATLAS.ti, based on semi structured interviews with key middle chain actors in Sweden's food supply chain. This analysis identified six connected themes that offer important insights into the factors that encourage or hinder these actors' willingness to source from EBA. The findings were further examined using SWOT analysis and Based on semi structured interviews with important middle chain participants in Sweden's food supply chain, a thematic analysis was conducted using ATLAS.ti. Six related themes that provide important insights into the elements that support or undermine these actors' inclination to source from EBA were found in this investigation. Stakeholder theory and SWOT analysis were used to further analyze the results, demonstrating how various stakeholders influence the perceived opportunities, threats, weaknesses, and strengths of the Swedish EBA supply chain. Theory, which helped show how different stakeholders shape the perceived strengths, weaknesses, opportunities, and threats within the EBA supply chain in Sweden.

Table 1. Summary of Findings

Themes	Key Indicator Interviewee Perception
1. Factors Influencing Driver Purchasing Decisions	Sustainability is important, but higher costs and supply issues make eco-friendly choices challenging.
2. Business Operational Driver Needs	Reliable supply and strong relationships with key stakeholders are key to maintaining quality and consistency.

3. Customer and Market Driver Influence	Opportunity	& Consumers, especially younger ones, want transparent and eco-friendly products, pushing companies to adapt.
4. Environmental Ethical Considerations	and Opportunity	Companies see protecting the environment as part of their responsibility, not just a marketing strategy.
5. Certification Compliance	and Challenge	Certifications build trust but can be expensive and hard for small scale producers to obtain.
6. Challenges in supply Chain	the Challenge	Regulatory hurdles and fragmented supply chains make it hard to scale up sustainable practices.

6.1 Factors Influencing Purchasing Decisions

Sustainability was identified as a leading factor influencing purchasing decisions of raw materials. Respondents emphasized that sourcing strategies were increasingly aligned with environmental goals such as biodiversity conservation, reduced chemical inputs, and soil health preservation principles central to EBA with the high demand that arose. As one major expert stated, sourcing was seen "not merely as a commercial necessity but as a commitment to safeguarding ecosystems and promoting future food security." This alignment represents a strength under the SWOT framework, providing companies with strategic advantages in appealing to environmentally conscious consumers.

However, price sensitivity is one another key decision regarding purchasing. Respondents acknowledged the reality of balancing environmental practices with consumer affordability expectations on the "cost barrier" in sustainable purchasing. Higher costs associated with EBA products resulting from lower yields and certification expenses were perceived as a major weakness threatening competitiveness. A particular respondent noted that, despite a strong commitment to sustainable sourcing, price sensitivity and supply reliability present ongoing challenges.

Organic products incur higher costs due to strict farming regulations and certification standards, impacting overall competitiveness in the market. Nevertheless, the companies which were interviewed emphasized that while financial considerations are important, they strictly avoid compromising on sustainability standards when selecting suppliers. Quality concerns also influenced purchasing choices. Companies made it clear that sustainability could not come at the cost of product safety, taste, or appearance, as these had to meet industry standard expectations. In addition, having a reliable supply was a key issue as EBA production can vary with the seasons and is less predictable on continuous supply, the purchasing and retail companies in the study often struggled to keep a steady and consistent supply of raw materials for the market.

From a stakeholder theory perspective, consumers and certification organizations have a strong impact on purchasing decisions. They push companies to achieve sustainability goals, even as those companies must manage day-to-day business challenges.

6.2 Business Operational Needs

Operational needs such as a steady and continuous supply of raw materials in EBA, compliance with production standards and regulations, and assurance of food safety were key factors in purchasing decisions. Respondents commented that although they were committed to supporting EBA farmers, they also required consistent supply

chains that could effortlessly integrate with their existing purchasing systems to cater the ongoing demand with consumers. Building long term, trust based relationships with suppliers was seen as a key way to reduce these risks. As one person explained, “Strong collaboration with farmers practicing EBA is crucial to bridging the gaps in supply reliability and quality assurance.”

In a SWOT analysis, this kind of uncertainty in operations is seen as a major threat, especially when trying to expand EBA into regular, large scale supply chains. Engaging directly with key stakeholders like farmers was seen as crucial for building stronger systems and solving production challenges.

6.3 Customer and Market Influence

Market dynamics and shifting consumer expectations played a crucial role in encouraging the sourcing of EBA products. Respondents reported that Swedish consumers, especially the younger population, increasingly demanded transparency, ethical sourcing, and environmental responsibility which is a trend consistent with recent European consumer studies. As a major participant, an expert from the industry observed, "Consumers no longer just want organic, they want products that actively regenerate the environment." As well as rest of the participants emphasized the importance of consumer education, aiming to enhance willingness to pay for truly sustainable products.

According to the SWOT analysis, middle chain actors can benefit greatly from this trend by increasing brand loyalty and drawing in more customers who are concerned about social and environmental issues. Stakeholder theory makes it abundantly evident how urgent it is for companies to swiftly and seamlessly transition their sourcing procedures to more environmentally friendly models like EBA in response to growing customer expectations.

6.4 Environmental and Ethical Considerations

Environmental ethics act prominently in respondent narratives. Middle chain actors positioned themselves as agents of protecting the environment, biodiversity and climate change. This ethical commitment can be recognized as a corporate social responsibility rather than thinking about it as a market advantage. An expert emphasized not just compliance but proactive efforts in restoring ecosystem health, performing double materiality analysis, and preventing greenwashing. This ethical alignment builds up a strength under SWOT, reinforcing stakeholder legitimacy and enhancing the trust towards the brand among both consumers and non-governmental organizations.

6.5 Certification and Compliance

Certification was considered as both a facilitator and an obstacle to the adoption process of EBA. Certifications with organic and eco labels, acts as a signal of sustainable practices, which facilitates consumer trust and market legitimacy. In this regard, certification is considered to be a strength as it enhances reputational capital and trust building. The respondents also noted that the certification process is costly, time-consuming, and inaccessible to small holder EBA producers. One significant respondent stated that "Certification restricts supply by excluding farmers who cannot afford the process, but it also provides market legitimacy". Similarly, other respondents also claimed that though the certification strengthens brand credibility and consumer trust, it also makes it higher production costs due to strict farming practices. These higher costs impact overall competitiveness. Nonetheless, middle chain actors in the sample maintain that despite financial pressures, they will not compromise on sustainability principles when selecting suppliers.

This duality highlights a significant weakness and threat for EBA sourcing. Without more inclusive certification pathways, middle chain actors will face restricted sourcing options. Stakeholder theory highlights how certification bodies can act to enable and constrain market access for EBA farmers.

6.6 Challenges in the Supply Chain

The adoption of EBA was held back by common, system wide supply chain challenges. Participants pointed out that while meeting food safety requirements is essential, there are also issues like disconnected supplier networks, inconsistent production levels, and regulations that often don't support EBA methods. One expert highlighted the importance of government involvement, suggesting that financial support or subsidies could help close the price gap between conventional and organic products, making it easier to include sustainable practices in the broader food system.

In the SWOT analysis, these supply chain issues are seen as both weaknesses and threats. Government agencies, considered secondary stakeholders, play a major role in shaping the progress of EBA practices. The extent of their support can strongly influence the growth and adoption of EBA in the market. Without improvements in infrastructure, streamlined certification processes, and more adaptable regulations, EBA is likely to continue being restricted to niche segments rather than becoming part of the broader, mainstream food industry.

7. Discussion and Conclusion

7.1 Discussion

This research aimed to identify how the middle chain actors in the Swedish food industry would engage with the concept of EBA. The results and findings suggest that while companies express strong support towards sustainability, the practicality of implementation is a bit complex. Although the respondents highlighted the values and corporate responsibility, the significant gaps have been found between what companies claim and what they are realistically able to achieve.

The participants of the interviewee program claimed that this gap is created as many companies rely on certification systems to prove their environmental commitment. One major purchasing expert stated that these systems can create barriers for smaller producers and may not always reflect actual ecological impact. Further one of the interviewees mentioned that sustainability is used as a marketing tool rather than as a fully integrated practice.

While the interviewed companies in the study shown a willingness to promote sustainable purchasing, it is important to confirm whether their actions lead to genuine ecological benefits or simply fulfilling the commercial interests. It is also important to emphasize that market leading companies have a greater influence and sufficient resources to fulfill the requirements. Promoting more inclusive certification schemes and building long term partnerships with stakeholders places a responsibility on the middle chain actors to support systemic change. Without systemic changes, EBA may continue to be limited to niche markets.

This research used a qualitative, interpretive approach to identify the drivers, challenges and opportunities related to purchasing from EBA. Semi structured interviews enabled respondents to share detailed information of their experiences and strategies, particularly in relation to the complex issues related to procurement

decisions and supply chain relationships. A key methodological novelty of this study is associated in its focus on major middle chain actors in Sweden such as processors, distributor who have been largely missed in previous research. By including these underrepresented groups, the study provides a more detailed and comprehensive understanding about how EBA sourcing is designed across the supply chain.

During the sampling process, it became clear that many small processing companies were controlled by larger firms. As a result, the study focused on four dominant market actors in food processing companies in Sweden. These companies have significant influence over national food supply chains, making them relevant for this research. While this focus improved the relevance of the data, it also meant that the findings may not reflect the views of smaller or independent actors.

The research approach was aligned with the power in the industry, which led to a focus on four major food processing organizations which have immense impact over national food supply chains. This method added depth and relevance to data as the leading organizations are key actors in making decisions about the concepts of sustainability and purchasing. But also it has many limitations such as that the study does not adequately represent small scale, independent processors who may have totally different perspectives on EBA sourcing. Therefore rather than representing a whole range of stakeholder groups the findings largely represent the viewpoints and methods of the most significant businesses. Future studies with a wider range of perspectives will be crucial as a result of this trade off particularly for the market's fewer influential actors. This study addresses the research aim through two research questions. For the research question one, which discusses the main drivers that encourage middle chain actors to buy raw materials from EBA.

The responses to the first question make it clear and explained very well that sustainability really matters when it comes to purchasing decisions. Many participants see EBA as a meaningful way to aid biodiversity, cut down on chemical use, and improve the overall health of ecosystems. This reflects what Björklund et al. (2012)

have pointed out that EBA plays a key role in protecting soil, preserving water resources, and ensuring farming remains productive in the long run.

Participants also talked about sustainability as more than just a nice-to-have; they see it as both a smart business move and a responsibility that companies should take seriously. This view is supported by study from Ruben & Dijkxhoorn (2022) and Grabs et al. (2024), which depicts that sustainable sourcing can boost a company's reputation and value by improving its performance in areas like environmental care, social responsibility, and governance (ESG).

The consumer demand obtained from younger and environment conscious demographics are considered as a strong driver. This is consistent with Pouta et al. (2024), who explored that rising consumer knowledge is pushing retailers and processors to integrate sustainability practices with purchasing strategies. Further literature emphasizes that low consumer knowledge and poor labelling of EBA may hinder wider market impact which is an issue acknowledged by several interviewees.

Some companies also view EBA as a part of a long term resilience strategy. Boufous et al. (2023) and Mvungi et al. (2024) supported this view by emphasizing that EBA aligned supply chains can offer access to premium markets, policy incentives and future competitive advantages. This shows a broader shift in business models where environmental alignment is seen as more important (Ruben & Dijkxhoorn, 2022).

The second research question aims to find out challenges and opportunities middle chain actors find in selling products from EBA. A primary challenge was the cost and participants repeatedly pointed out that production and certification costs for EBA products were very high. Björklund et al. (2012) and Boufous et al. (2023), mentions that labour intensive practices and ecofriendly inputs raise expenses as a supporting idea to the above view point. Additionally, Mvungi et al., 2024 explains that these costs are difficult for companies to compete in price sensitive markets when the cost is passing down through the chain.

Another challenge was the unreliability of supply. As described by Grabs et al. (2024) and Mvungi et al. (2024), EBA practices often result in seasonal variability and lower yields, making it harder to guarantee consistent raw material supply. This was particularly problematic for larger firms that require predictability in volume and timing.

Even with these limits, the study found some clear opportunities. Interviewees said that building long-term partnerships with EBA producers can help ensure a steady supply and build trust which is something the literature identifies as vital for integrating sustainable practices into supply chains (Grabs et al., 2024). They also pointed out that educating consumers about EBA can make people more willing to pay higher prices, which aligns with findings showing that greater awareness boosts sustainable purchasing (Pouta et al., 2021; Broch et al., 2013).

In conclusion, many participants expressed optimism about receiving stronger policy support in the future. European Commission (2022) and Olbe (2011) also highlights how public funding, supportive regulations, and simpler certification processes are key to advancing EBA adoption.

In summary, middle chain actors are striving to uphold their environmental values while managing the practical challenges of doing business. Although they present a strong willingness to support EBA, its broader adoption depends on lowering economic challenges, and encouraging stronger partnerships across the supply chain.

To better understand how EBA is taking shape in practice, future research should widen its scope beyond just big companies and include smaller, independent businesses that may have different experiences and insights. It's also important to look at how a variety of people and groups like farmers, scientists, policymakers, consumers, and local communities see and engage with EBA. Since this study mainly focused on middle chain actors, there's a real need to explore how these different stakeholders can work together and make EBA a more natural part of everyday food systems. It would also be valuable to look at how EBA is being implemented in other countries. Because food

systems and sustainability goals can differ widely from one place to another, comparing Sweden's experience with that of other nations could offer useful insights into how EBA might work on a broader, global scale.

7.2 Conclusion

This study reveals that many middle chain actors in Sweden's food industry truly care about sustainability and the environment. However, how far they're able to act on that commitment varies. Things like limited financial situations, complex certification processes, and challenges in the supply chain often make it harder for them to fully embrace EBA in practice.

Even with the challenges there are real opportunities for progress of EBA like increasing consumer interest in sustainability, the value of ethical branding, and long term business goals that align with environmental responsibility. But the study makes it clear that no single company can drive the shift to EBA on its own. Real change depends on stronger, more meaningful collaboration across the whole network of people involved from middle chain actors and EBA farmers to policymakers and certification bodies. These partnerships can help ease the barriers, make supply chains more reliable, and expand sustainable practice in the food supply chains. Still, it's important that these efforts are inclusive and fair, making sure that smaller groups are not pushed aside or left out by larger, more powerful actors.

Supporting multi stakeholder engagement and creating inclusive, transparent systems will be vital for enabling EBA to move from niche initiatives to mainstream food supply strategies. This study emphasizes the need for collaboration among different stakeholders to create food systems that are both resilient and environmentally sustainable. However, since our data mainly represent the views of large, influential companies, it is important to be aware that such partnerships can risk reinforcing power imbalances or monopolies which may threaten fairness and long term sustainability.

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Appendix

Appendix 1: Questionnaire

Section 1: Background Information

1. What is your role in the supply chain, and how do you interact with different stakeholders (e.g., farmers, consumers, regulators)?
2. Who are the key decision-makers in your organization when it comes to sourcing, and how do different stakeholders impact their choices?
3. Do you currently source raw materials from Ecosystem-Based Agriculture (EBA)? If yes, What types of raw materials do you typically source ?

Section 2: Drivers for Sourcing from EBA

1. What stakeholder groups (e.g., consumers, government, NGOs, investors) encourage you to source from EBA farmers? How?
2. How do sustainability certifications and government incentives impact your sourcing decisions?
3. How important is brand reputation and market positioning when choosing sustainable sourcing?
4. What specific incentives (such as government policies, subsidies, or financial support) would encourage you to source from EBA?

Section 3: Challenges in Sourcing from EBA

1. What are the biggest challenges you face when sourcing from EBA farmers? (e.g., price, quality, supply consistency, infrastructure, certification) Are there any stakeholder related challenges (conflicts with suppliers, regulatory hurdles, financial constraints) ?

2. What strategies do you use to overcome above mentioned challenges when sourcing from EBA farmers?
3. How do current policies and regulations support or hinder sourcing from EBA?
4. How do cost differences between conventional and EBA-based raw materials influence your procurement decisions?
5. How do supply chain disruptions in EBA sourcing affect your relationships with stakeholders (e.g., customers, investors, regulators)?

Section 4: Opportunities & Future Adoption

1. Do you see growth opportunities in sourcing from EBA farmers? If so, in which areas?
2. What kind of support (e.g., policy incentives, financial aid, technology) would help increase your sourcing from EBA?
3. How can collaboration between processors and farmers be improved to facilitate EBA sourcing?
4. How do you think consumer awareness and demand for EBA products could be increased?

Section 5: Closing Thoughts

1. What role do processors play in shaping the future of EBA, and how can they better engage with stakeholders?
2. What role should processors play in balancing stakeholder interests while promoting sustainable agriculture?
3. Is there anything else you would like to add about EBA and its role in the supply chain?

Acknowledgment

We want to sincerely thank Professor Helena Hansson, our supervisor at the Swedish University of Agricultural Sciences, Department of Economics, for her invaluable advice, insightful criticism, and unwavering support during this research process.

We also want to express gratitude to our examiner, Dr. Per-Anders Langendahl, for his helpful criticism and support, which have greatly improved the caliber of this work.

We are especially grateful to the representatives of Sweden's four largest food processing companies who so kindly shared their insightful opinions, experiences, and insights. Your help was essential to the success of this study.

Finally, we would like to express our gratitude to the Economics Department of the Swedish University of Agricultural Sciences in Uppsala for providing a supportive learning environment and the tools and resources we need to carry out productive research.

Thesis Publication and Archiving Agreement

We, Naduni Herath and Nilanthika Wimalarathne, confirm that we are the authors of the thesis submitted to the Swedish University of Agricultural Sciences (SLU) as part of the requirements for the Degree of Master of Science in Business Administration.

We understand that SLU provides the opportunity to publish approved theses online through the university's digital repository. As the copyright holders of our work, we must give our consent for the full text to be made publicly available.

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YES, we, **Naduni Herath** and **Nilanthika Wimalarathne**, have read and agree to the terms of the SLU publication agreement and consent to the processing of our personal data. We approve the online publication of our thesis.

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Date: 29th June, 2025