

Acting for biodiversity
A closer look at the Finnish food industry

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Abstract

Addressing biodiversity loss is critical for the sustainable future of humankind and other species. Food production ranks among the primary causes of global biodiversity loss. Relying on an interview-based research design, this paper delves into the biodiversity actions of a representative sample of 37 companies in the Finnish food sector. Our contribution is in developing a categorization of the biodiversity actions of food sector companies, showing their similarities and differences, depending on their location in the domestic value chain. The actions of primary producers matter, bearing a direct effect on natural ecosystems. In contrast, the food industry, trade, and food services companies' biodiversity actions are indirect and conducted at the corporate level as well as via functions, such as supply chain management, product development as well as sales and marketing. Going forward, more research is called for, across sectors and global value chains.

Keywords: responsible business, case study, grounded theory, biodiversity, agriculture, food, business

1. Introduction

Biodiversity refers simply to the variety of all life on earth (Chivian & Bernstein, 2008). Loss of biodiversity is threatening species and ecosystems around the world. According to the latest Global Risks Report of the World Economic Forum (2024, 7,8), biodiversity loss is also among the three most important long-term risks faced by humankind in terms of severity. The urgent need to halt biodiversity loss has been noted but decisive action is still missing.

Food production ranks among the primary drivers of biodiversity loss globally. Nearly half of all habitable land on earth is being used for agriculture which makes halting biodiversity loss without making changes in the food system impossible (Benton et al. 2021, 2,6,8). Finland, the focus of this paper, is not an exception: the effects of increased efficiency in agriculture have also weakened biodiversity in Finland (Hyvärinen et al. 2019, 90,97). Current biodiversity actions have not been enough to halt biodiversity loss, in Finland or globally (IPBES 2019; Kangas et al. 2023, 73).

In order to start addressing this broad gap, this paper delves into the nature and state of biodiversity work in Finnish companies operating in the food sector. We ask: “what kinds of biodiversity actions are undertaken by Finnish companies operating across the domestic food value chain?” Given the lack of prior research on the subject, we adopted an explorative qualitative research approach with a grounded theory research design (Glaser & Strauss, 1967). We sampled companies to represent the Finnish food value chain covering companies from primary production to trade, food industry, and food services. The size of the companies varied from companies employing just the entrepreneur to companies employing thousands of people and valuing billions of euros. We conducted interviews with senior representatives from 37 companies. Websites of the interviewed companies were also used as supplementary material.

This paper focuses on company actions that are directly aimed at improving biodiversity. These actions can be direct or indirect in nature, but their common denominator is that their goal is to improve biodiversity. Thus, actions that affect biodiversity indirectly such as using renewable energy to combat climate change have been omitted even though climate change ranks among the main drivers for biodiversity loss. Furthermore, actions that are minor, legally required, ineffective or even harmful to biodiversity have been omitted even though the companies might have presented them as their biodiversity actions. The actions presented in this paper are not all-encompassing, yet offer an overview of the state of actions in the companies. Recognizing the global scope of food value chains, this paper focuses explicitly on the domestic food chain in Finland.

This is a paper in progress. An advanced version of this paper is currently in preparation for journal submission.

Literature review on business and biodiversity

Companies are critical actors in halting biodiversity decline (Addison et al., 2020). Surprisingly, research connecting business and biodiversity is scant (Teerikangas et al., 2023). Furthermore, theorizing on sustainability management does not yet offer efficient conceptual tools for understanding relationship between decision-making and biodiversity decline (Winn and Pogutz, 2013).

Taking a closer look, existing studies, across countries and sectors, paint a bleak picture of companies' actual deeds toward preserving biodiversity. Companies appear to be lacking agency toward tackling the biodiversity crisis, as their motivation stems from external constraints, such as legislation or standards (Boiral et al., 2018; Smith et al., 2018). Therefore, pressure from regulation and markets is called for (Grigg, 2005; Moreira, 2019).

Extant research posits that biodiversity protection has not been incorporated into companies' operations, environmental management and corporate responsibility programs (Grigg, 2005; Boiral et al., 2018). Studying companies' "no net loss" and "net positive impact" biodiversity commitments, De Silva et al. (2019) found that half had made such commitments, while only very few had made active commitments, and none of those had met all the requirements. Similarly, Hassan et al. (2020, 2022) found that reporting on biodiversity in companies' annual reports is scarce, generic and unsystematic. Considering the lack of management, control and reporting tools to address biodiversity loss, most commitments are symbolic (Wagner, 2022) or evaluated based on unclear indicators (Talbot & Boiral, 2021). In other words, direct actions to protect ecosystem services remain very low compared to indirect actions (Wagner, 2022). This paper starts to address this research gap by appreciating companies' direct actions toward protecting biodiversity (Wagner, 2022).

2. Research methods and setting

Due to the word limit, this section is included in the full paper in detail.

3. Findings

The studied companies' biodiversity actions differed depending on where the company is located in the food value chain. We identified 1) biodiversity actions specific to primary producers, 2) corporate level biodiversity actions that occurred across all companies, and 3) function-specific biodiversity actions occurring in companies not engaged in primary production. In guise of summary, Table 1 below offers a categorization of the identified biodiversity actions.

First-order concepts	Second-order themes	Aggregate dimension	Company’s location in food value chain
Organic farming Regenerative farming	Primary production methods respecting biodiversity	Primary production	Companies in primary production
Soil actions Decreasing chemical use Biotope management & grazing Pilot actions for decreasing negative biodiversity impacts	Improvements to mainstream methods		
	Strategy Sustainability reporting Biodiversity measuring Training	Corporate level	Companies in trade, industry and food services
Function-specific biodiversity actions			
Certifications Company policies	Procurement criteria	Supply chain management	
Contract producer agreements Best practice sharing Premiums	Collaboration with primary producers		
Plant-based proteins Locally sourced fish Organic products	Developing biodiversity-friendly products	Product development & production	
Pilot farms & sites	Pilot activities in primary production		
Making the biodiversity-friendly choice easier Educating customers	Guiding consumers	Sales and marketing	
Making more products available	Increasing the selling of biodiversity-friendly products		

Table 1: Categorization of studied companies' biodiversity actions

3.1 Biodiversity actions in primary production

The biodiversity actions in primary production are characterized by their concreteness, as they are conducted directly in natural ecosystems bearing thus a concrete effect on nature.

The reported biodiversity actions can be classified into two categories. First, there are actions that represent production methods where respecting biodiversity is built into the method. In this category, individual producers have adopted production methods such as regenerative farming (n=1/11) or organic farming (n=3/11).

Second, there are actions that are singular improvements to the currently used (mainstream) production methods. Here, the companies have adopted actions that include different kinds of soil actions (n=5/11), decreasing the use of chemicals (n=5/11), managing biotopes (n=2/11), and conducting different kinds of pilot actions that aim at decreasing the negative impact on biodiversity (n=2/11).

The studied producers' commitments to addressing biodiversity varied. While some had adopted several biodiversity actions (n=5/11), others were only engaged in one (n=3/11) or even none (n=3/11).

3.2 Corporate level biodiversity actions

We identified corporate-level biodiversity actions shared by companies operating in all parts of the value chain. These actions related to strategy, sustainability reporting, biodiversity measuring, and training.

First, as regards strategy, nearly half of the companies (n=15/37) have biodiversity-specific strategic aims. In our sample, front-runners have either recently included or are working towards including biodiversity in their strategies.

Second, as regards sustainability reporting, biodiversity has been included in some companies' sustainability reports (n=8/37) at varying levels of detail. Currently, many companies regard biodiversity reporting as a way to gather understanding on how their operations impact biodiversity in the bigger picture.

Third, individual companies (n=5/37) are piloting biodiversity measuring schemes. As biodiversity is a relatively new issue, most companies are only at the beginning of developing their measurement schemes. To begin their work, many of them have taken part in consulting-led pilot programs.

Finally, as regards HR, very few companies (n=4/37) are educating their employees or even employees of their partner companies on biodiversity.

3.3 Function-specific biodiversity actions

Contrary to primary production where the biodiversity actions are concrete, most of the biodiversity actions in the food industry, trade, and food services are indirect in their nature and conducted in different functions. Taking a closer look, these relate to: 1) supply chain management, 2) product development & production, and 3) sales & marketing.

3.3.1 Supply chain management

As the bulk of the environmental impacts of food production occurs in primary production (Deconinck & Toyama 2022), for companies not operating directly with land, acting via their supply chains is a central means to decrease their negative impact on biodiversity. In our sample, we found two main approaches: 1) procurement criteria, and 2) collaboration with primary producers.

More than a half of the studied companies (n=15/27) use company policies or certificates to decrease their impact on biodiversity. They have company-specific policies especially regarding deforestation and fish. Many companies also trust certifications for products identified as potentially risky such as fish, palm oil, and coffee. As selecting certified products does not require specific expertise from the buyer, using certifications is considered an easy way to have a positive effect on biodiversity.

Another means of addressing biodiversity loss is via direct collaboration with primary producers. In this respect, a third of the studied companies (n=10/27) are cooperating with producers via contract producer agreements to support biodiversity-friendly production methods. Some (n=4/27) companies are sharing, or even developing, biodiversity-friendly best practices for producers. Individual (n=2/27) companies are paying premiums for producers for their biodiversity actions.

3.3.2 Product development & production

Product development and production offer another means for companies in the food industry to address biodiversity loss. This occurs by: 1) developing biodiversity-friendly products and 2) conducting pilot activities in primary production.

First, regarding product development, some companies (n=7/16) are developing new biodiversity-friendly products in the fields of plant-based proteins, locally sourced fish and organic products.

Second, individual (n=4/16) companies conduct pilot activities in their test sites, aiming at improving biodiversity in the production methods of primary production.

3.3.3 Sales & marketing

We identified two kinds of biodiversity actions in sales & marketing: 1) guiding consumers and 2) increasing the sales of biodiversity-friendly products.

Some food services companies (n=4/7) position the plant-based foods strategically in buffet servings and increase their share in the menu, thus supporting the consumer in making biodiversity-friendly choices. Moreover, companies (n=3/27) are educating their customers on how to make better choices.

Increasing the biodiversity-friendly product offering is another way for companies (n=8/27) to improve the odds of the customer making better selection. Companies are, for example, marketing organic products and increasing the number of vegetarian options in the menu.

4. Discussion

Previous literature reviews have shown companies' poor appetite toward addressing biodiversity decline (Teerikangas et al., 2023). When they are active toward biodiversity, research shows that they tend to engage in symbolic or indirect activities (Talbot & Boiral, 2021).

In this paper, we answer calls to study companies' direct biodiversity actions (Wagner, 2022). Our contribution is in developing a categorization of the biodiversity actions of food companies, showing their similarities and differences across the domestic value chain. We observed a marked difference in the biodiversity actions undertaken by primary producers, as compared to companies in other parts of the food value chain. This stems from the fact that primary producers work directly with land, whereas the biodiversity impact of other companies is more indirect, occurring primarily via their supply chain.

We further observed that the uptake for biodiversity actions varies greatly among companies. While some companies do a lot for nature, some still consider making minor improvements or complying with legal requirements as progressive biodiversity actions.

Overall, out of studied 37 companies, nine did not conduct any biodiversity actions, while five had actions in only one of the identified categories – this makes up more than a third of the interviewed

companies. As per Table 2 below, most biodiversity actions occurred in primary production and supply chain management. Also, many actions were conducted by only a few companies and it can be said that, generally, the more ambitious the action, the fewer companies there were conducting them.

The companies reported several challenges due to which they have not been able to increase the scope of their biodiversity actions. Among them were economic reasons, lack of human resources, lack of transparency in global supply chains, lack of measurement systems, and the overall difficult nature of the concept of biodiversity. These issues need to be tackled to make the leap towards biodiversity-respectful food business.

On a positive note, most companies reported interest in increasing the scope of their biodiversity actions. Going forward, we call for research on how these actions could be further encouraged. Moreover, we call for research on biodiversity actions in global food value chains as well as across sectors.

Action	Primary production	Trade	Food industry	Food Services	Number of companies
Total number of companies	11	6	16	7	37
Primary production					
Primary production methods respecting biodiversity					
Regenerative farming	1	n/a	n/a	n/a	1
Organic farming	3	n/a	n/a	n/a	3
Improvements to mainstream methods					
Soil actions	5	n/a	n/a	n/a	5
Decreasing chemical use	5	n/a	n/a	n/a	5
Biotope management & grazing	2	n/a	n/a	n/a	2
Pilot actions	2	n/a	n/a	n/a	2
Companies with no actions	3	n/a	n/a	n/a	3
Corporate level					
Biodiversity in strategies	2	3	8	3	15
Biodiversity in reporting	1	3	3	1	8
Biodiversity measuring	0	2	3	0	5
Training	0	2	1	2	4
Companies with no actions	9	3	7	3	21
Supply chain management					
Procurement criteria					
Certifications	n/a	4	4	2	10
Company policies	n/a	4	7	3	14
Collaboration with primary producers					
Contract producer agreements	n/a	3	7	1	10
Best practice sharing	n/a	1	3	0	4
Premiums	n/a	2	0	0	2
Companies with no actions	n/a	1	7	3	11
Product development & production					
Developing biodiversity-friendly products					
Plant-based proteins	n/a	n/a	3	n/a	3
Local fish products	n/a	n/a	2	n/a	2
Organic products	n/a	n/a	4	n/a	4
Pilot activities in primary production					
Pilot farms & sites	n/a	n/a	4	n/a	4

Companies with no actions	n/a	n/a	9	n/a	9
Sales and marketing					
Guiding consumers					
Making the biodiversity-friendly choice easier	n/a	0	0	4	4
Educating customers	n/a	0	1	2	3
Increasing the selling of biodiversity-friendly products					
Aims to increase the sale of biodiversity-friendly products	n/a	2	3	3	8
Companies with no actions	n/a	4	13	2	16

Table 2: Biodiversity actions of companies (n=37).

Note: One company operates in industry / trade, one operates in primary production / industry, and one in primary production / trade.

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