Double Materiality Assessment at Viikki Research Farm

June 2025

powered by covere²

Double Materiality Assessment Report

Executive Summary

This Double Materiality Assessment (DMA), conducted at Viikki Research Farm and powered by COVERE², delivers a structured and science-based evaluation of the farm's sustainability performance and strategic positioning.

It is designed to align with the European Sustainability Reporting Standards (ESRS) under the Corporate Sustainability Reporting Directive (CSRD), transforming ESG data into actionable business insights.

Report for

Viikki Research Farm

Date

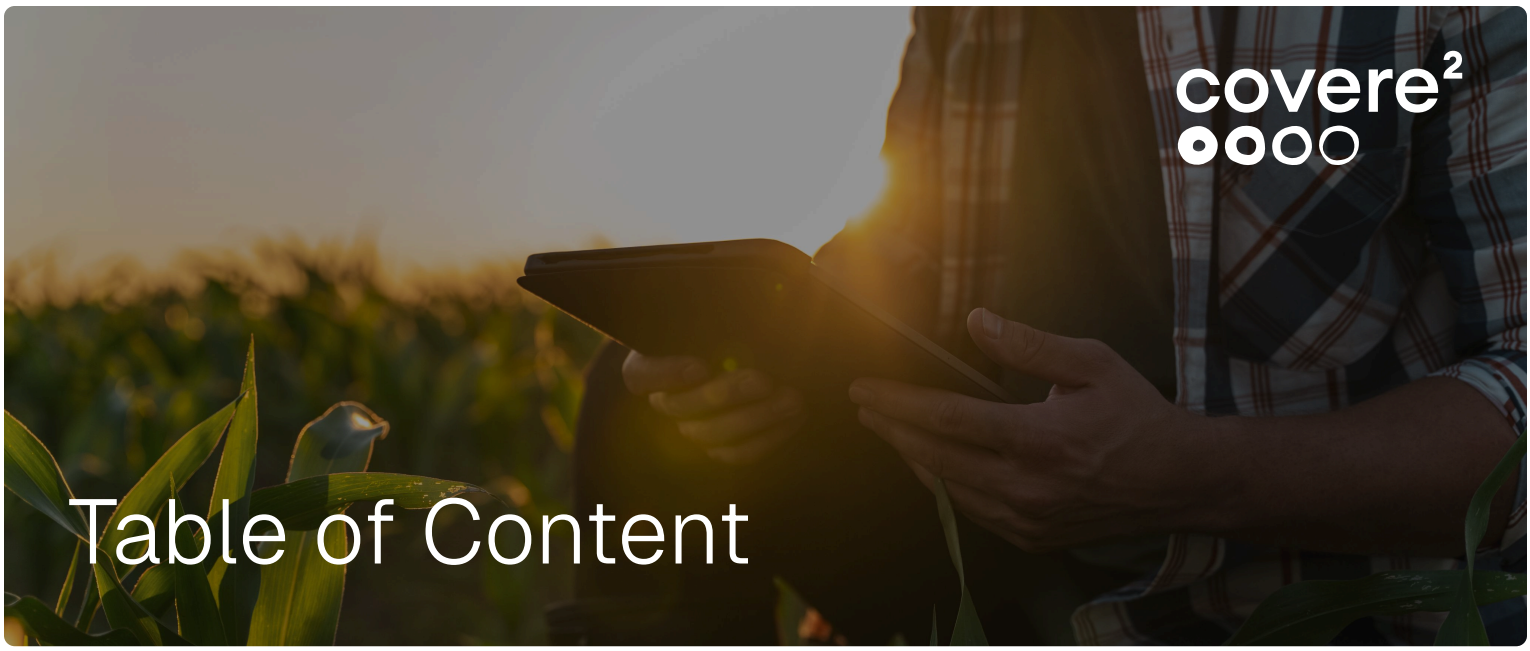
2025

Industry

Food, Agriculture

Location

Finland



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Double Materiality Assessment: Definition and Goals

Goals

The Double Materiality Assessment provides a comprehensive evaluation of both the financial impacts of sustainability issues on a company and the broader effects of a company's activities on the environment, society, and governance (ESG). As a fundamental step toward compliance with frameworks such as the EU Corporate Sustainability Reporting Directive (CSRD), this assessment strengthens strategic decision-making, long-term resilience and transparency.

The approach focuses on two critical dimensions of materiality:

1. **Financial Materiality** – Evaluating how sustainability factors influence financial performance, risk exposure, and business value.

Example

Risk for Viikki Research Farm: Stricter climate regulations, such as limits on agricultural greenhouse gas emissions or requirements for climate-resilient farming practices, could increase compliance costs and additional costs for transitioning to low-emission farming practices (e.g., methane capture systems, alternative feed formulations). In addition, the farms might have to pay potential fines or penalties for non-compliance with evolving climate-related regulations.

Example

Opportunity for Viikki Research Farm: The link with the University enables the possibility to offer stable working conditions, job security, upskilling and training opportunities to the employees, which improves employees satisfaction, operational capability avoiding recruitment costs and staff shortage during peak seasons.

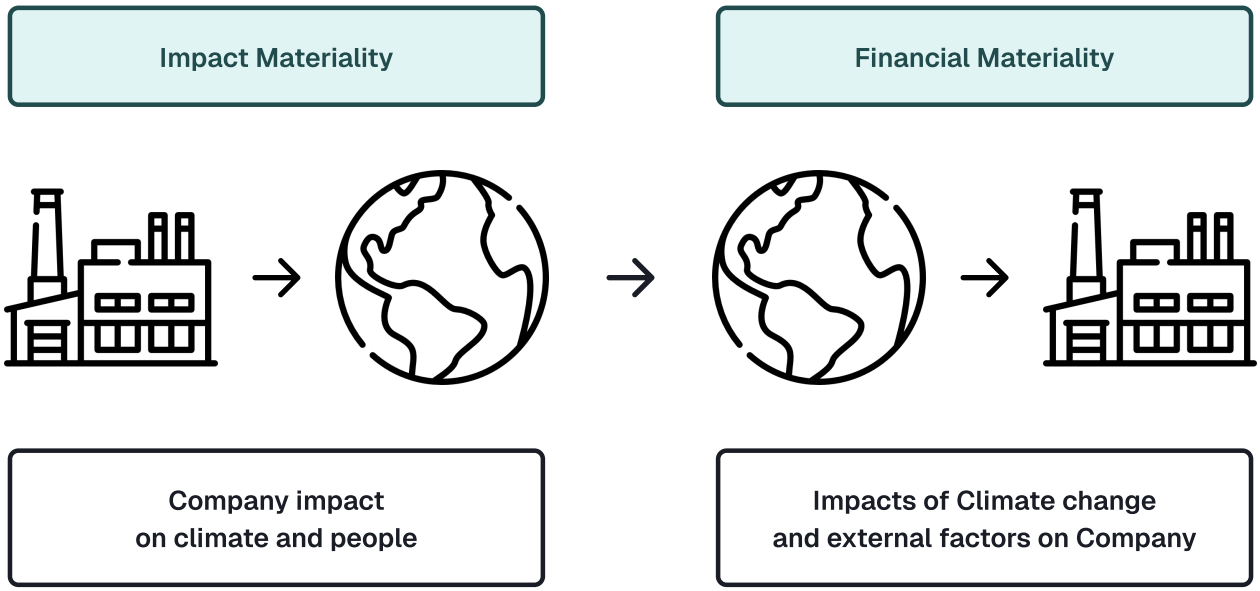
2. **Impact Materiality** – Assessing the company's impact on the environment, society, and governance (ESG).

Example

Positive Impact of Viikki Research Farm: Agriculture is essential in preserving the natural landscape, a role that is especially significant considering the farm's unique location in the heart of Helsinki.

Example

Negative Impact of Viikki Research Farm: The farm's dairy operations, including methane emissions from the 60 dairy cows and manure management practices, contribute to increased greenhouse gas emissions, exacerbating climate change



This report outlines the key objectives and deliverables of the assessment, which include:

- **Understanding Viikki's Business Context and Operations** – Analyzing economic activities, corporate structure, and value chain, along with identifying key stakeholders.
- **Identifying Impacts, Risks, and Opportunities (IROs)** – Recognizing actual and potential ESG impacts and strategic risks.
- **Assessing Significance** – Evaluating the importance of identified IROs through stakeholder engagement.
- **Setting the Time Horizon** – Assessing the short-, medium-, and long-term relevance of each Impact, Risk, and Opportunity (IRO).
- **Defining Material Topics** – Prioritizing and ranking material issues based on the European Sustainability Reporting Standards (ESRS).
- **Developing the Materiality Matrix** – Structuring and visualizing key material topics.
- **Evaluating Data Availability** – Assessing existing documents, metrics, and targets for each material topic.
- **Conducting an Initial Gap Analysis** – Identifying areas for improvement in sustainability data and reporting.
- **Presenting Key Findings and Recommendations** – Summarizing insights and actionable next steps.

This structured approach ensures a comprehensive assessment, providing a strong foundation for strategic decision-making and regulatory compliance.

> **A Double Materiality Assessment (DMA) is more than a compliance exercise:** it is a strategic tool that strengthens business resilience, enhances risk management, and aligns with evolving stakeholder expectations.

> **As sustainability regulations tighten, carbon footprint accountability becomes a company's right to operate.** With the Corporate Sustainability Reporting Directive (CSRD) transforming sustainability data into a strategic asset, businesses can leverage insights to future-proof operations and sharpen decision-making.

Beyond regulation, stakeholder expectations towards sustainability continue to rise. Businesses that proactively assess and address ESG issues position themselves as leaders in a market where traceability, transparency, and accountability are no longer optional.

A Double Materiality Assessment (DMA) ensures CSRD compliance while providing strategic insights that enhance business resilience and growth.

Methodology

User-Centered Approach to Double Materiality Assessment

The Double Materiality Assessment (DMA) follows a user-centered design approach, ensuring that the process is both structured and adaptive to the unique needs of each organization. By integrating the Double Diamond Design Process, the methodology balances exploration and refinement, leading to meaningful and actionable insights. The approach begins with user research, gathering input from key stakeholders. This exploratory phase ensures a broad understanding of the environmental, social, and financial factors that shape materiality. Via an iterative process, findings are tested and refined before being validated. The process narrows down to the essentials, focusing on transformation by prioritizing the most significant Impacts, Risks, and Opportunities (IROs).

Science-Based Approach to Double Materiality Assessment

The Double Materiality Assessment (DMA) is grounded in a science-based methodology, ensuring that findings are data-driven and verifiable. A rigorous research framework is applied to validate or refine hypotheses, ensuring that materiality assessments are both objective and actionable. Comprehensive data collection combines primary and secondary research with AI-assisted analysis, enhancing the depth and accuracy of insights. AI is leveraged to broaden the scope and diversity of inputs, capturing a wide range of perspectives and emerging trends. This expansive input is then refined through expert validation, structured analysis and stakeholders review, ensuring that the final results are focused, specific, and directly relevant to strategic decision-making.

This approach was developed through a public-private partnership, co-funded by the European Union in collaboration with leading universities. Multiple pilot cases have validated the methodology, reinforcing its robustness and demonstrating its credibility and real-world applicability.

Stakeholder Engagement as a Core Principle of Double Materiality Assessment

Effective stakeholder engagement is at the heart of the Double Materiality Assessment (DMA), ensuring that the process reflects real-world dynamics and diverse perspectives. Internal stakeholders play a key role in narrowing down priorities, validating the assessment, and providing targeted input to ensure it accurately reflects reality.

Strengthening their involvement also empowers organizations to integrate sustainability into decision-making, fostering ownership and long-term commitment.

Beyond internal teams, the methodology actively engages the value chain, incorporating insights from suppliers, partners, and external stakeholders. This broad perspective ensures a comprehensive assessment of Impacts, Risks, and Opportunities (IROs) across the entire ecosystem.

By embedding stakeholder engagement into the assessment, the DMA becomes a collaborative, strategic tool for meaningful transformation.

Figure 1: COVERE² workshop at the University of Helsinki, November 2024

European Sustainability Reporting Standards (ESRS)

The Double Materiality Assessment for Viikki Research Farm is grounded in the European Sustainability Reporting Standards (ESRS), the official framework established under the Corporate Sustainability Reporting Directive (CSRD).

ESRS provides a comprehensive and standardized structure for sustainability reporting, designed to ensure transparency, comparability, and relevance of non-financial information across European organizations.

ESRS framework is built around three main pillars: **Environment (E)**, **Social (S)**, and **Governance (G)**. Each pillar includes a set of topics and subtopics. For this assessment, the full list of ESRS topical standards was considered, including (but not limited to):

- **Environment:** Climate Change, Pollution, Water and Marine Resources, Biodiversity and Ecosystems, Circular Economy
- **Social:** Own Workforce, Workers in the Value Chain, Affected Communities, Consumers and End-users
- **Governance:** Business Conduct

This framework was selected because of its **regulatory relevance**, **granularity**, and **structured approach to double materiality**. Given the multifaceted nature of Viikki Research Farm -as both a producer of milk and cereals and an integral part of the University of Helsinki's research and educational ecosystem, the ESRS is particularly well-suited to capture its broad spectrum of direct and indirect sustainability impacts.

Moreover, the framework provides a strong foundation for identifying and evaluating risks and opportunities across all three pillars (Environment, Social, and Governance) each of which plays an essential role in the assessment.

By using the ESRS as a guiding framework, the assessment ensures that all relevant sustainability dimensions are addressed in a structured and actionable manner.

The Process

The Double Materiality Assessment (DMA) process is structured into four main steps, each accompanied by related activities and workshops to engage stakeholders. The roadmap for Viikki Research Farm's DMA process is outlined as follows:

Kick-off	Assessment	Gap Analysis	Finalisation
25.11.2024 - 03.12.2025	04.12.2024 - 28.03.2025	29.03.2025 - 16.05.2025	16.05.2025 - 30.05.2025
• Initial data collection on Viikki's operations (geography of operations, number of employees, turnover, sustainable business model, it's value chain, management structure and business strategy) • Stakeholders mapping	• Identification of the Impacts, Risks and Opportunities (IROs) • Evaluation of the Magnitude, Likelihood and time horizons of the IROs • Identification of material topics • Display of results in a Materiality Matrix	• Based on the list of materiality topics for Viikki, collecting main documentation • Assessing the documentation • Performing initial Gap Analysis • Preparation of final DMA report	• Feedback and amendment of the Gap Analysis • Review and validation of the final DMA report
Kick-off Workshop	Assessment Review Workshops (x2)		Final Assessment Workshop
	Assessment Validation Workshop (x2)		

Figure 2: Kick-off meeting at Viikki Research Farm facility, December 2024, Helsinki

The process is streamlined through the COVERE² platform, which ensures that steps are organized, visible, and well-structured.

Stakeholder Engagement

The success of the Double Materiality Assessment (DMA) process for Viikki Research Farm is significantly shaped by the involvement of key internal stakeholders, whose expertise and insight ensure the assessment is relevant, precise, and reflective of the farm's unique characteristics.

The primary internal stakeholders involved in the assessment are:

Director of Viikki Teaching and Research Farm, Research Coordinator at the Department of Food and Nutrition and Postdoctoral Researcher at the Department of Food and Nutrition

These stakeholders play a crucial role in narrowing the scope of the assessment, identifying which topics or Impacts, Risks, and Opportunities (IROs) are truly relevant to Viikki Research Farm. Their engagement helps to fine-tune the formulation of the assessment by ensuring that it is focused and aligned with the specific realities of the farm’s operations. By prioritizing the most significant issues, they ensure that the assessment remains both accurate and actionable.

Their involvement is primarily through a series of workshops designed to foster collaboration and gather input. In addition, ongoing communication facilitates the exchange of ideas and clarification of any uncertainties, ensuring a continuous flow of information throughout the assessment process.

While the internal stakeholders from Viikki Research Farm are actively engaged, it is important to note that the value chain stakeholders were not involved in this first year of the assessment.

This decision was made to keep the initial phase focused and manageable. In future iterations of the assessment, engagement with value chain stakeholders is anticipated to provide a deeper understanding of external risks, opportunities, and impacts, as well as enhance the breadth of the analysis.

Understanding the business context: Viikki Research Farm

Viikki Research Farm is a research farm that provides a modern farm infrastructure to serve as a platform for research and education purposes of the Faculty of Agriculture and Forestry at University of Helsinki.

The farm is a part of the HiLIFE (Helsinki Institute of life science) infrastructures. The farm administrates 155 hectares of arable land and a research dairy barn with 60 dairy cows.

Main part of the arable area is used conventionally for feed production for the dairy cattle; grass silage and pasture are grown roughly on half of the fields, and the rest of the area is used for feed grain and protein crop (e.g. faba bean) production, as well as for test plots for plant science and other life sciences research.

Figure 3: Viikki Research Farm location on the map.

Viikki Research Farm’s Products and Services

Research

Principal research areas at the Viikki research farm are feeding are welfare of dairy cows, plant production, soil sciences and agricultural engineering. Currently many of research topics are related to climate change, reduction of greenhouse gases emerging from food production and soil carbon sequestration. The research in Viikki focuses on how agriculture can feed the growing population of our planet ecologically, socially and economically as sustainably as possible.

Figure 4: Field visit to Viikki Research Farm

Research dairy barn. The modern dairy barn is highly automated. Milking is accomplished with automated milking system and feed mix is distributed with automated feed distribution wagons. The barn is equipped with RIC system, which enables the monitoring of feed intake of each individual cow, and GreenFeed system for real time methane emission measurements.

The barn is divided in two sections: freestall section, which holds a major part of the cattle, and tiestall section with 12 animal places for individual research. The VRF research barn enables many kinds of cattle related research: nutrition, welfare, behavior, technology, etc. In summertime, all of our animals have a possibility for gracing at the pastures every day.

Farmland

All of the farmland administrated by the Viikki research farm is located closely around the farm centre. Soil types of the fields are mainly fine sandy or fine sandy moraine soils with high organic matter content. Field plots closest to the dairy barn? are mainly used as pastures, and a 3-4-year silage grass crop rotation is applied to the rest of the fields. Cereals and faba bean are cultivated between the grass rotation.

Several hectares of field are used annually as research plots. The farmland at the Viikki research farm enables diverse research in plant production and soil sciences, agrotechnology and -ecology and animal sciences.

Machinery and Technology

The farm uses modern machinery and grain drying technology, which enables diverse agrotechnological research. Our farm infrastructure offers also a great platform for the research of new agricultural technologies, such as automation and data management, unmanned aerial vehicles and field robots or sensor and measurement technology.

Poduction

Despite the character as a research farm, we produce a substantial amount of foodstuff.

- Our cows produce ca. 600 000 litres of milk annually, which is sold to the dairy as in any other farm
- More than 1000 tons of grass silage is produced for cow feed annually
- About 200 000 kg of cereals and faba bean is produced annually. Excessive crop yields, which are not used as feed, are also to the food industry

Attraction

Viikki research farm hosts dozens of visitor groups annually, from kindergartens and schoolchildren to public officers, companies and organisations. Every spring, together with the dairy company Valio, we organise a public event, where our cows are let out to the pasture for the first time after winter.

Thousands of people around the city gather to share the joy of the animals each year. However, supporters of animal rights have also drawn significant public attention. Together with the bay "Vanhankaupunginlahti", our fields form a unique natural and recreational area, and even internationally notable bird reserve, just next to the heart of Helsinki city.

Figure 5: Pasture area at Viikki Research Farm

Value Proposition

Viikki Farm offers a diverse range of value propositions, advancing agricultural research, sustainability, education, and public engagement to drive innovation in sustainable food production.

- Cutting-Edge Agricultural Research: A modern research infrastructure enabling high-quality studies in agriculture, livestock management, soil sciences, and sustainability.
- Sustainability and Climate Research: Expertise in carbon sequestration, greenhouse gas reduction, and ecological food production solutions.
- Sustainable Food Production: High-quality dairy and crop products contributing to food security and public health.
- Innovative Dairy and Crop Farming Practices: Providing insights into precision farming, and smart agrotechnologies.
- Educational and Training Platform: A hands-on environment for students, researchers, and professionals to learn and apply agricultural sciences.
- Public Awareness and Engagement: Educational events and collaborations promoting sustainable agriculture among consumers, policymakers, and businesses, while proving access to nature in a highly urbanised area.

To deliver its value proposition, Viikki Research Farm holds key resources that are essential assets for its business model.

The farm boasts modern research infrastructure, including a dairy barn, farmland, test plots, and advanced agrotechnology facilities. It is supported by scientific expertise from skilled researchers, faculty, and technical staff specializing in agriculture and sustainability.

Additionally, the farm utilizes advanced data and technology, such as automation, monitoring systems, and precision farming tools. Strong partnerships with universities, government agencies, and industry players further enhance its capabilities and impact.

Stakeholder Group (Customers and End-Users)

Viikki Farm engages a diverse network of stakeholders, from industry players and researchers to policymakers, students, and the public, fostering collaboration in sustainable agriculture.

- Dairy and Crop Industry Players: Companies in food production, genetics, and sustainability looking for innovations and best practices.
- Academic & Research Institutions: Universities and research centres requiring real-world agricultural and environmental data.
- Agricultural & Agrotechnology Companies: Businesses testing, validating, and demonstrating new agricultural technologies and processes.
- Government & Policy Makers: Institutions needing research-based insights for agricultural policies, climate action, and food security.
- Students & Educational Institutions: Schools and universities using the farm for practical learning and training.
- General Public & Society: Individuals and communities interested in sustainable farming, nature, and public events.

Channels for Stakeholders Engagement

Viikki Farm connects with stakeholders through direct partnerships, digital outreach, events, on-site visits, and published research, fostering collaboration, knowledge sharing and business growth.

Direct Engagement: Partnerships with universities on projects, companies within diary and crop production value chain, and institution bodies such as the Minister of Agriculture, the City of Helsinki for joint projects and subsidies management. It also entails physical visits & demonstrations, such as hosting research teams, student groups, and public events at the farm.

Online Presence: Website, social media, and scientific publications for outreach and education.

Publications & Reports: Disseminating research findings through scientific papers, reports and publication.

Key Resources and Main Costs

Viikki Farm sustains its operations through three main funding sources and revenue streams: research funding, national and EU subsidies, and revenue from agricultural product sales.

University Contributions: The university provides financial support through the overhead of research grants and funding. This includes subsidies from both national and EU funders, aimed at fostering sustainability and agricultural research projects.

National and International Funding through Subsidies: Substantial funding is received from national and international bodies dedicated to agriculture.

Product Sales: Revenue is also bolstered by the sale of products such as milk, cereals, and excess feed. These products are sold to the food and dairy industry, generating significant income that supports ongoing research and operational costs.

Viikki Farm manages its expenses through three main cost categories: personnel costs, infrastructure and facility upkeep, and operational costs.

Personnel Costs: Salaries for researchers, farm staff, and technical experts.

Infrastructure & Facility Upkeep: Rent for the farm, maintenance of dairy barns, fields, and other facilities.

Operational Costs: Expenses for food, fuels, fertilizers, electricity, monitoring systems, and feeding materials.

Figure 6: Main barn facility at Viikki Research Farm

Value Chain

Upstream Partners

Viikki Research Farm collaborates with several upstream partners who provide essential inputs and resources. The University of Helsinki and HiLIFE contribute funding, research opportunities, faculty expertise, and student engagement. Seed, fertilizer, and feed suppliers offer seeds, fertilizers, and additional feed components necessary for research and production. Insemination services are also provided by specialized partners.

Agrotechnology and equipment manufacturers supply farm machinery, automation tools, precision agriculture technologies, and robotics for testing and use. This category also includes data and sensor technology companies that provide monitoring systems and solutions for farm data collection and precision farming.

Additionally, government and EU agriculture and research funding bodies support the farm's activities with subsidies and funding for regulatory compliance and various projects.

Downstream Partners

Viikki Research Farm collaborates with a diverse range of downstream partners. Dairy industry partners, such as Valio, purchase raw milk produced on the farm and engage in dairy sustainability projects. Food industry and crop buyers acquire surplus cereals and faba beans, while some agents purchase calves for resale as meat.

Figure 7: Valio as a key partner in the Viikki Research Farm value chain

Living cows are sold to slaughterhouses, and the resulting meat is bought by consumers. The University of Helsinki, and other educational and training institutions utilize the farm for hands-on learning and professional development. Government and policymakers, mainly at the regional level (Uusimaa) interact with Viikki Research Farm irregularly.

The general public, including schools, students, and visitors, engage with the farm through events. Additionally, MTK, farmers' organizations, and other farms collaborate with Viikki Research Farm to enhance agricultural practices and knowledge sharing.

Materiality Assessment at Viikki Research Farm

General insights on the Impacts, Risks and Opportunities (IROs)

A total of 120 Impacts, Risks, and Opportunities (IROs) were identified for Viikki Research Farm. Of these, **91 were classified as material**, while 29 were deemed non-material.

The largest category by far is Positive Impacts, with 43 entries (more than double any other section). These are primarily concentrated in social topics, particularly **positive impact on Own Workforce** (10 entries) and Affected Communities (6 entries). In the environmental domain, most positive impacts relate to Pollution, largely attributed to the farm's sustainability practices, which generate beneficial outcomes in areas such as pollution of living organisms and food resources, as well as soil health.

Interestingly, the total number of Negative Impacts, Risks, and Opportunities is evenly distributed, with each category comprising the same number of entries (16). **The majority of negative impacts fall under the Environment**, notably due to the farm's contributions to Climate Change and Pollution.

Given the agricultural nature of Viikki's operations, it is no surprise that **a significant portion of the opportunities (6 out of 16) relate to Climate Change**, highlighting the farm's potential role in climate resilience and innovation.

On the financial risk front, out of 16 entries, **5 are linked to social concerns, specifically, conditions for workers in the value chain**, reflecting Viikki's responsibilities toward labor practices among suppliers and customers. This is followed by Climate Change, accounting for 4 of the 16 financial risks.

Finally, while the subtopic of **Water and Marine Resources** was assessed as non-material, related aspects such as water use and waste are captured under other relevant themes, including Biodiversity and Circular Economy.

Assessing the importance of the Impacts, Risks and Opportunities (IROs)

Method

Assessing the materiality of the IROs is done via a systematic and comprehensive grading process, which is as follows. For each Identified Risk Opportunity (IRO), stakeholders assessed both the **impact and likelihood magnitude** of each items.

Impact magnitude refers to the potential significance, while likelihood denotes the probability of the occurrence.

A scale from 1 to 5 was utilized, where:

- 1 represents very low,
- 2 represents low,
- 3 represents average,
- 4 represents high, and
- 5 represents very high.

An IRO is deemed material if it achieves a total score of 4 or higher.

This score reflects a high enough potential consequence or probability to demand attention and action. It distinguishes moderate relevance from strategic materiality.

Moreover, similar methodology is outlined by the European Financial Reporting Advisory Group (EFRAG), as detailed on page 31 of the "EFRAG IG 1: Materiality Assessment Implementation Guidance" document, dated May 2024. In addition, given that the Viikki Farm is already engaged in sustainable practices and is not subject to mandatory ESRS compliance, the threshold was defined collaboratively to focus on issues most relevant to their context and transformation goals.

Key Findings

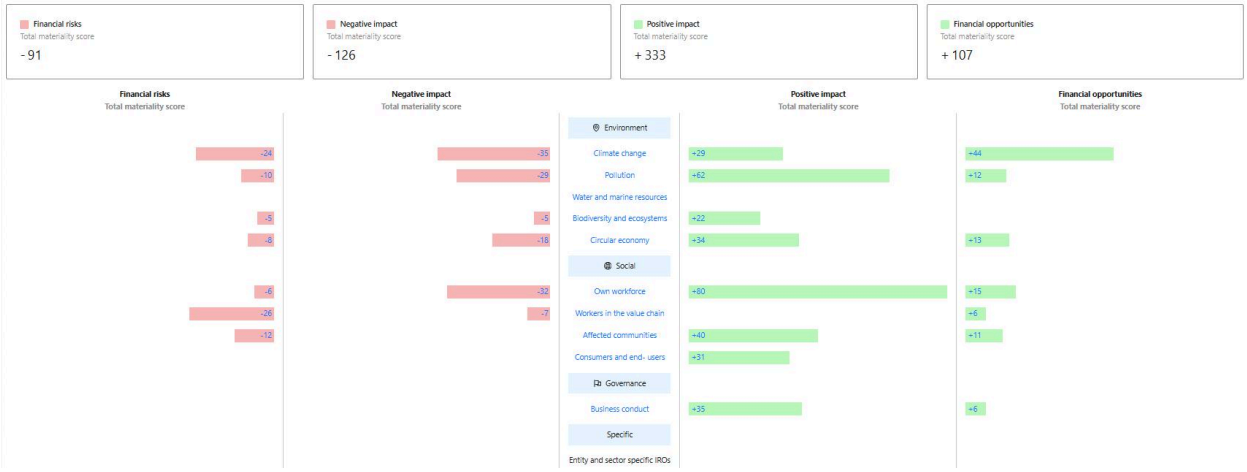


Figure 8: Graphic of IROs scoring the Impacts, Risks and Opportunities (IROs)

Assessment of Risks and Opportunities

The **overall balance between risks and opportunities is relatively even**, with **climate change** standing out as the most significant opportunity area, scoring more than twice as high as any other opportunity (44 out of 107). The main opportunities lie in climate change adaptation, and mitigation, which present valuable avenues to enhance resilience and sustainability in Viikki's farming operations. At the same time, **climate change also represents a considerable risk**, accounting for a quarter of the total risk score, due to its direct and indirect effects on agriculture, particularly the impact of extreme weather events on production.

A risk of equal importance falls under the social dimension, specifically concerning workers in the value chain. Viikki's farm currently has **limited oversight** on its value chain beyond an annual tendering process for fertilizers, creating a potential risk of being linked to wrong labor practices, including forced labor, inadequate health and safety standards, or unethical treatment of animals. Although the likelihood of such risks is low, their potential reputational and compliance consequences make them a critical consideration.

On the **environmental side, pollution and circular economy present moderate opportunities**, while on the social side, topics such as **own workforce and affected communities** represent areas for strategic improvement.

Assessment of Impacts

Viikki Farm predominantly generates positive social impacts, largely due to its unique affiliation with the University of Helsinki. This connection contributes to positive outcomes in the category of own workforce, achieving an outstanding score. The negative impacts on own workshop, which score less than half of the positive, are linked to Seasonal fluctuations, Limited Career Progression and Nonflexible scheduling and no or limited remote work possibility.

Additionally, the farm has a **positive influence on affected communities**, driven by the contribution to the farm to Local Food Security and by practicing sustainable and safe land use methods. Consumers and end users, including students, and citizens benefit from the farm's presence and activities by gaining access to milk products, transparent information, and an opportunity to learn through hands-on experience. Located at the heart of the city, the farm also offers a unique chance to witness farming practices and interact with animals, further enhancing its positive social impact.

On the environmental side, impacts are more balanced, with both positive and negative factors at play. **Climate change impact remains neutral overall**, reflecting the farm's strong commitment to sustainability, including the reuse of manure as organic fertilizer. However, it still supports livestock farming, which generates greenhouse gas emissions. Similarly, in the areas of pollution and the use of substances of concern, the farm presents a mixed profile: while the use of organic fertilizers leads to positive outcomes, the reliance on fossil fuels for tractors, generators, and other machinery contributes negatively.

Viikki Farm's **unique urban location** enhances its **biodiversity impact**, contributing positively to local ecosystems. In the area of **circular economy**, the farm exhibits **both positive and negative aspects**, with the reuse of all collected manure as organic fertilizer enhancing soil health and driving sustainable practices, while the use of single-use plastics or non-recyclable materials presents areas for improvement.

Regarding governance, the farm yields only positive impacts, driven by **robust animal welfare practices and high standards** that ensure proper living conditions and veterinary care.

In conclusion, this nuanced impact profile highlights both the strengths and areas for improvement, positioning Viikki Farm as a key player in sustainable agricultural innovation, all while producing livestock.

Identifying material topics via the Materiality Matrix

The materiality matrix enables a clear identification of the topics and subtopics based on ESRS Framework deemed material for Viikki Research Farm, based on the assessment of Impacts, Risks, and Opportunities (IROs).

The materiality matrix visualization aims at providing a clear overview of both financial materiality and impact materiality. It illustrates the key environmental, social, governance factors that impact the organization, and the impact of Viikki Research Farm on those same topics. This presentation offers a clear understanding on how sustainability issues and financial performance intersect and to identify synergies.

Methodology of the Materiality Matrix established from the IROs

The materiality matrix uses two axes:

- **Impact Materiality:** Integrating positive and negative impacts, to reflect the significance of an issue based on its environmental, social and governance consequences.
- **Financial Materiality:** Integrating risks and opportunities, to represent the financial implications of an issue on the organization.

Each axis follows a scoring scale:

- **1-2 → Low**
- **2-4 → Medium**
- **4-5 → High**

Materiality scores are determined by evaluating only **material matters**, considering both **positive and negative impacts, risks and opportunities**. The scoring method is as follows:

1 **Impact Materiality Score Calculation**

For each material matter, scores from **Impact Magnitude** and **Impact Likelihood** are summed.

The total is then divided by the number of material matters and further adjusted to align with the two scoring dimensions.

Formula: **Σ (Impact Magnitude + Impact Likelihood) / Number of Material Matters × 2**

2 **Financial Materiality Score Calculation**

The same methodology is applied to financial materiality, summing scores for **Financial Magnitude** and **Financial Likelihood**, then normalizing based on the number of material matters and the two-scale system.

Subtopics are considered material if they score High/High, High/Medium, or Medium/High on the materiality matrix, reflecting their significance in terms of both financial and impact materiality. This scoring follows the same logic as the IROs grading. It reflects a high enough potential consequence or probability to demand attention and action. It distinguishes moderate relevance from strategic materiality. Moreover, similar methodology is outlined by the European Financial Reporting Advisory Group (EFRAG), as detailed on page 31 of the "EFRAG IG 1: Materiality Assessment Implementation Guidance" document, dated May 2024.

This structured approach ensures consistency in assessing both financial and impact materiality, allowing for a clear and balanced representation within the materiality matrix.

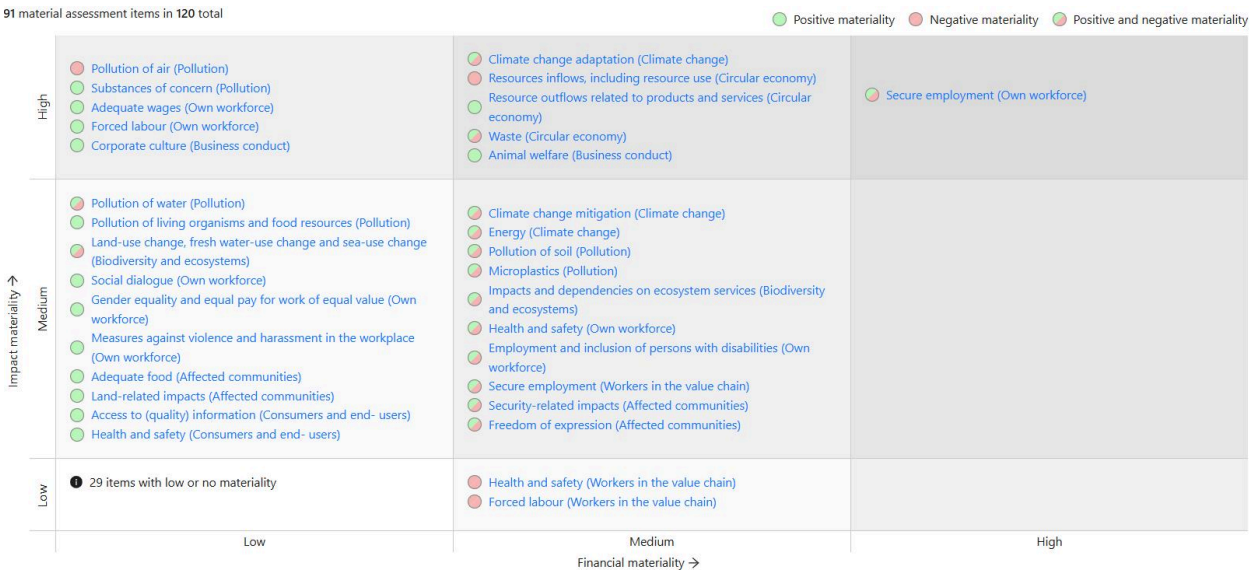


Figure 9: Materiality scores of impact materiality and financial materiality

Based on the materiality matrix above, the topics and subtopics deemed material for Viikki Research farms are:

E / S / G	Topic	Subtopic
S	Own Workforce	Secure Employment
E	Climate Change	Climate Change Adaptation
E	Circular Economy	Resources inflows, including resource use
E	Circular Economy	Resource outflows related to products and services
E	Circular Economy	Waste
G	Business Conduct	Animal Welfare

E = Environment / S = Social / G = Governance

The ESRS framework comprises 92 sub- and sub-subtopics. For Viikki Research Farm, 34 of these (~40%) were found to have associated Impacts, Risks, or Opportunities (IROs). Among them, 6 subtopics have been assessed as material.

The Impacts, Risks and Opportunities (IROs) of Viikki Research Farm

This section provides a focused overview of the Impacts, Risks, and Opportunities (IROs) deemed most material, specifically those rated maximum score and high score: 5/5 in both Magnitude and Likelihood, 4/5 in Magnitude and 5/5 in Likelihood and 4/5 in Magnitude and 4/5 in Likelihood.

There are no IROs grading maximum score in Magnitude (5/5) and high score in Likelihood (4/5). These entries reflect the areas of greatest relevance for Viikki Research Farm. The full list of IROs is available in the annex.

Each item includes a defined time horizon, offering a foundation for prioritization and supporting the farm in taking the next steps toward addressing these key issues. Short-term refers to impacts expected within one financial year, medium-term spans 1 to 5 years, and long-term covers those expected beyond 5 years.

IROs top graded: maximum score in Magnitude (5/5) and in Likelihood (5/5)

E / S / G	Topic	Subtopic	Impacts - Risks - Opportunities	Time Horizon
E	Climate Change	Climate Change Adaptation	**Negative Impact** The farm's dairy operations, including methane emissions from the 60 dairy cows and manure management practices, contribute to increased greenhouse gas emissions, exacerbating climate change	Short
E	Climate Change	Climate Change Adaptation	**Positive Impact** Through its role as a research and educational platform, the farm empowers the next generation of agricultural professionals and policymakers with tools and strategies to address climate-related challenges, facilitating systemic adaptation across the sector.	Short
E	Climate Change	Climate change mitigation	**Negative Impact** Livestock farming accounts for over 70% of agricultural greenhouse gas emissions in the EU. This creates a tension between maintaining current farm operations and meeting climate change mitigation goals.	Short
E	Biodiversity and Ecosystems	Direct impact drivers of biodiversity loss	**Positive Impact** Agriculture is essential in preserving the natural landscape, a role that is especially significant considering the farm's unique location in the heart of Helsinki.	Short

E / S / G	Topic	Subtopic	Impacts - Risks - Opportunities	Time Horizon
E	Circular Economy	Resource outflows related to products and services	**Positive Impact** All manure is collected and reused on the farm, enhancing soil quality. This practice of utilizing byproducts adds value and supports a circular economy. However, biogas technology has not yet been implemented.	Medium
S	Consumers and End-Users	Information-related impacts for consumers and/or end-users	**Positive Impact** End-users of the farm are also communities nearby, in Helsinki and in Finland, who are provided with a place where can be witnessed farming activities and animals at the center of the city. It is especially valuable for children.	Short
G	Business conduct	Corporate Culture	**Positive Impact** The organization maintains a stable culture, anchored to the University of Helsinki, with a robust governance structure, established policies and procedures, and a clearly defined code of conduct. It upholds core values such as non-discrimination, innovation, collaboration, and support for science	Short
G	Business conduct	Animal welfare	**Positive Impact** Implementing and promoting high animal welfare standards aligns operations with ethical expectations and strengthens trust with stakeholders. It enhances reputation, builds consumer trust, and aligns with regulatory and market demands.	Short
G	Business conduct	Animal welfare	**Positive Impact** Ensuring proper living conditions and veterinary care reduces stress and disease, leading to healthier animals and better-quality outputs. It increases operational efficiency and product quality, reducing costs related to animal health management.	Short

IROs top graded: high score in Magnitude (4) and maximum score in Likelihood (5)

E / S / G	Topic	Subtopic	Impacts - Risks - Opportunities	Time Horizon
E	Climate Change	Climate change mitigation	**Opportunity** The farm could increase their sustainable agriculture practices and get involved into carbon farming projects, getting additional revenue from Carbon Credits, benefiting from increased prices of the products and higher amount of products sold. Achieving certifications could improve the farm's brand and make its services/products more attractive to environmentally conscious stakeholders	Short
E	Pollution	Pollution of Air	**Negative Impact** The use of fossil fuels in tractors, generators, and other machinery, along with the application of fertilizers, leads to direct emissions of ammonia and contributes to climate change.	Short

E / S / G	Topic	Subtopic	Impacts - Risks - Opportunities	Time Horizon
E	Pollution	Pollution of soil	**Positive Impact** The use of diverse crop rotations and cover crops reduce soil erosion and prevents the buildup of harmful substances in the soil. It enhances soil health and reduces vulnerability to pollution from chemical inputs.	Short
E	Pollution	Substances of concern	**Positive Impact** Implementing Integrated Pest Management (IPM) strategies reduce the need for chemical pesticides by relying on biological controls and precision application	Short
E	Circular Economy	Resources inflows, including resource use	**Negative Impact** The extensive use of non-recyclable materials, such as single-use plastics for wrapping, contributes to environmental pollution and waste accumulation.	Short
E	Circular Economy	Waste	**Negative Impact** The use of single-use plastics or non-recyclable materials in farm operations, generating non-biodegradable waste, and environmental pollution. It increases the farm's waste footprint even though waste is typically disposed of according to standard waste management procedures.	Short
E	Circular Economy	Waste	**Positive Impact** Utilizing organic waste, such as manure converted into liquid form and applied to fields as a nutrient source, helps reduce waste while creating valuable byproducts. This practice decreases landfill waste, lowers greenhouse gas emissions, and improves soil quality, all of which contribute to a circular economy.	Short
S	Own workforce	Working conditions Secure employment	**Positive Impact** Long-term contracts provided to the six employees at the farms enhances job security and employee satisfaction.	Short
S	Own workforce	Working conditions Secure employment	**Positive Impact** Efficient Shift Management optimizes workload without overburdening employees.	Short
S	Own workforce	Working conditions Secure employment	**Negative Impact** Seasonal fluctuations can create overwork for workers.	Short
S	Own workforce	Working conditions Secure employment	**Negative Impact** Non flexible scheduling and no or limited remote work possibility might challenge workers to balance personal and professional responsibilities.	Short

E / S / G	Topic	Subtopic	Impacts - Risks - Opportunities	Time Horizon
S	Own workforce	Working conditions Secure employment	**Opportunity** The link with the University enables the possibility to offer stable working conditions, job security, upskilling and training opportunities to the employees, which improves employees satisfaction, operational capability avoiding recruitment costs and staff shortage during peak seasons	Short
S	Own workforce	Working conditions Adequate wages	**Postivie Impact** Competitive Salaries attract and retains skilled workers.	Short
S	Own workforce	Working conditions Health and safety	**Postivie Impact** Provision of Safety Equipment enhances employees well-being and trust	Short
S	Own workforce	Other work-related rights Forced labour	**Postivie Impact** Zero-Tolerance Policies Against Forced Labour ensures ethical practices and compliance with legal standards.	Short

IROs top graded: high score in Magnitude (4) and high score in Likelihood (4)

E / S / G	Topic	Subtopic	Impacts - Risks - Opportunities	Time Horizon
E	Climate Change	Climate change adaptation	**Positive Impact** The farm's use of experimental plots to test and implement sustainable agricultural techniques (e.g., improved crop rotations, reduced tillage) enhances soil health and sequesters carbon, aiding long-term adaptation to changing climate conditions.	Medium
E	Climate Change	Climate change adaptation	**Risk** Stricter climate regulations, such as limits on agricultural greenhouse gas emissions or requirements for climate-resilient farming practices, could increase compliance costs and additional costs for transitioning to low-emission farming practices (e.g., methane capture systems, alternative feed formulations). In addition, the farms might have to pay potential fines or penalties for non-compliance with evolving climate-related regulations.	Medium
E	Climate Change	Climate change adaptation	**Opportunity** Diversify agricultural production to reduce vulnerability to climate change, by shifting away from reliance on cattle and cereal crops towards more climate-resilient alternatives	Long

E / S / G	Topic	Subtopic	Impacts - Risks - Opportunities	Time Horizon
E	Climate Change	Climate change adaptation	**Opportunity** By conducting field experiments and trials, Viikki Research Farm contributes to the development of climate-resilient crop varieties, such as drought-tolerant or heat-resistant plants, which can benefit broader agricultural practices in adapting to climate change.	Short
E	Climate Change	Climate change mitigation	**Negative Impact** Intensive arable farming can lead to soil carbon depletion and land management emissions, especially when crop rotations do not prioritize soil health, which reduces the potential for soil to act as a carbon sink and undermines the farm's mitigation objectives.	Medium
E	Pollution	Pollution of water	**Negative Impact** Fertilizer and manure application on arable land can result in nutrient runoff (nitrogen and phosphorus), causing eutrophication in nearby water bodies	Short
E	Pollution	Pollution of living organisms and food resources	**Positive Impact** The farm's research promotes reduced use of harmful chemicals and innovative farming methods, which can protect living organisms in surrounding ecosystems and ensure cleaner, safer food resources. It enhances biodiversity and reduces harmful pollutants in food and ecosystems, benefiting public health and environmental sustainability.	Short
E	Pollution	Pollution of living organisms and food resources	**Positive Impact** Establishing natural buffer zones around fields reduces the risk of nutrient runoff, protecting aquatic organisms and maintaining the integrity of nearby ecosystems. It reduces pollution-related harm to living organisms and contributes to the protection of local biodiversity.	Short
E	Circular Economy	Waste	**Positive Impact** Effective systems for waste segregation and recycling may lead to lower waste disposal volumes and opportunities for resource recovery. It decreases waste management costs while supporting sustainability performance.	Short
S	Affected Communities	Communities' economic, social and cultural rights Adequate food	**Positive Impact** Contribution to Local Food Security with research and farming innovations improve crop yields, benefiting local food availability and affordability.	Short
S	Affected Communities	Communities' economic, social and cultural rights Adequate food	**Positive Impact** Support for Sustainable Agriculture enhances long-term food security for communities.	Short

E / S / G	Topic	Subtopic	Impacts - Risks - Opportunities	Time Horizon
S	Consumers and end-users	Information-related impacts for consumers and/or end-users Access to (quality) information	**Positive Impact** Providing comprehensive and truthful information about products to the customers (such as Valio) enhances consumers and end-users satisfaction and trust. Ensuring product information is available across accessible platforms improves inclusivity and consumer experience.	Short

Conclusions

The identification of 120 IROs, 91 of which are material, demonstrates the breadth and complexity of Viikki Research Farm's sustainability landscape. **Positive social impacts, especially for the own workforce and local communities, clearly dominate the findings**, underlining the farm's strong connection with the University of Helsinki and its surrounding community.

At the same time, a balanced distribution of negative impacts, risks, and opportunities reveals key environmental, social and governance challenges and benefits, particularly those linked to **climate change, value chain practices and animal welfare**.

The structured scoring methodology ensures transparency and comparability across all material topics, enabling a nuanced understanding of the importance of both financial and impact materiality. By surfacing the most relevant IROs and aligning them with time horizons, Viikki Research Farm is well-equipped to prioritize meaningful interventions. 9 IROs scored the maximum of 5/5 in both Magnitude and Likelihood and are related to the topics of **Climate Change, Biodiversity and Ecosystems, Circular economy, Consumers and end- users, and Business conduct**.

Figure 9: Dairy cows inside the main barn at Viikki Research Farm

Initial Gap Analysis

The goals of the Initial Gap Analysis

The objective of the initial gap analysis is to evaluate the current state of sustainability-related data and practices at Viikki Research Farm, specifically in relation to the topics identified as material through the Double Materiality Assessment.

This process consists in two main activities:

- **Evaluating Data Availability:** Assessing existing documents, metrics, and targets for each material topic. The aim is to collect and assess the level of data already available.
- **Conducting an Initial Gap Analysis:** Building on the data evaluation, this phase focuses on identifying areas where information is missing or insufficient, and where improvements are needed in sustainability data collection, reporting, and overall management.

This gap analysis provides a baseline to inform next steps in aligning with the ESRS (European Sustainability Reporting Standards) and advancing Viikki Research Farm's sustainability performance and reporting capabilities.

> Its integration into the Double Materiality Assessment reflects COVERE²'s commitment to impact and transformation, going beyond a simple reporting exercise to equip Viikki Farm with the insights and direction needed to support continuous improvement and long-term sustainability outcomes.

Methodology of the Initial Gap Analysis

The initial gap analysis was guided by a collaborative and iterative approach, involving active engagement with stakeholders throughout the process. The aim was to gather relevant information, collect and assess existing artifacts.

The methodology followed three key steps:

1. **Initial Data Collection:** From the beginning of the project, stakeholders were involved through presentations introducing the activity and the rationale behind the collection of key artefacts. This kick-off phase allowed for a shared understanding of the process and early input on available data.
2. **Initial Gap Analysis Step Integrated into DMA process:** The gap analysis was fully embedded as a dedicated step within the broader Double Materiality Assessment (DMA) process. At this stage, stakeholders had the opportunity to provide additional insights and flag any missing elements. By conducting the gap analysis once stakeholders were already engaged and familiar with the project, the process benefited from a more informed and meaningful contribution. This timing also helped ensure that relevant documents were not overlooked. As a result, the analysis remained dynamic, while the data collection process was both thorough and firmly rooted in stakeholder realities.
3. **Stakeholder Validation Activities:** During the final workshop, the results of the Initial Gap Analysis were presented for review, discussion, and validation by stakeholders. In this session, participants were encouraged to adjust, clarify, and complement the preliminary findings based on their expertise and knowledge. This co-validation process was essential to enhance the accuracy of the assessment and to ensure that the conclusions drawn were both relevant and truly representative of the farm's operational context.

At Viikki Research Farm, the gap analysis focused on three main internal artifacts:

- The **Safety Plan**, including its associated risk assessment
- The **2024 Subsidy Application**
- An **Extract from the Valio Carbon Calculator**

These documents, provided in PDF, Word, or Excel formats, served as the primary sources for evaluating current practices. In addition, a significant amount of information was found on the **University of Helsinki's website**, particularly regarding **Social** and **Governance** topics.

These online resources were shared by stakeholders in response to the guiding question:

"Do you have policies, sets of practices, guidelines, or even targets to manage the following topics and sub-topics?"

To assess the completeness and relevance of the information, a simple but effective "traffic light" method was used:

- The topic is well-covered and satisfactorily addressed
- Partial coverage; there are identifiable gaps in how the topic is managed
- The topic is currently not addressed or documented

This method provided a clear and visual way to identify strengths and areas for improvement across the sustainability topics assessed as material, paving the way for targeted next steps in enhancing Viikki's data readiness and sustainability performance.

Results of the Initial Gap Analysis

We focus exclusively on material topics to ensure that the gap analysis targets the most relevant sustainability issues, those with the greatest actual or potential impact on Viikki Research Farm and its stakeholders.

Environment

Topic	Subtopic	Document		Conclusions
Climate Change	Mitigation, Adaptation	Subsidy application 2024 Extract from Valio Carbon Calculator		There are references to **Environmental Measures**, such as reuse of Organic Nutrient (manure) as Organic fertilizers, presence of Collector Plants and Precision Farming methods. In addition, the reference to Environmental Compensation (**Ympäristökorvaus**) demonstrates the farm's implementation of environmentally friendly farming practices. It includes metrics on the farm's operations, its **carbon footprint,** detailing Greenhouse Gas Emission Sources, Eutrophication Potential and Acidification Potential.
Climate Change	Energy	Extract from Valio Carbon Calculator		It entails data on **Fuels** and **Energy** consumption.
Pollution	Air, Water, Soil, Living organism and food resources	Subsidy application 2024		Viikki decided to implement a buffer zone, even if not required by, but it is not documented.
Pollution	Substances of concerns	Safety plan, including risk assessment Extract from Valio Carbon Calculator		There are references to **hazardous materials and chemical safety**, particularly in the context of **storage and handling** of dangerous substances. Management of oil tank, pesticides and feed preservatives is also specified. It entails data on **Nitrogen Fertilization, Phosphorus Fertilization and Feed Additives**.
Pollution	Microplastics	Safety plan Extract from Valio Carbon Calculator		**Waste management** is not covered in the Safety plan. Data sheet includes metrics on **Manure Handling.**
Biodiversity and Ecosystems	Land use change, fresh water use change and sea use change Impacts and dependencies on ecosystem services	Subsidy application 2024 Extract from Valio Carbon Calculator		There is the list of **Crop Types & Areas**. Reference is made to **winter plant cover** activity to support ecosystem. In addition, the reference to Environmental Compensation (**Ympäristökorvaus**) demonstrates the farm's activities towards preserving and supporting biodiversity. Data sheet include metrics on **Outdoor Grazing**

Topic	Subtopic	Document		Conclusions
Circular Economy	Resources inflows Resources outflows Waste	Subsidy application 2024 Extract from Valio Carbon Calculator		The reference to Environmental Compensation (**Ympäristökorvaus**) demonstrates the farm's activities on nutrient recycling (manure), which reduces waste. In addition, promoting the Circular Economy is selected as Sector-specific measures in the Environmental Commitments section. Data sheet includes metrics on **Manure Handling, Yield information and Storage Losses.**

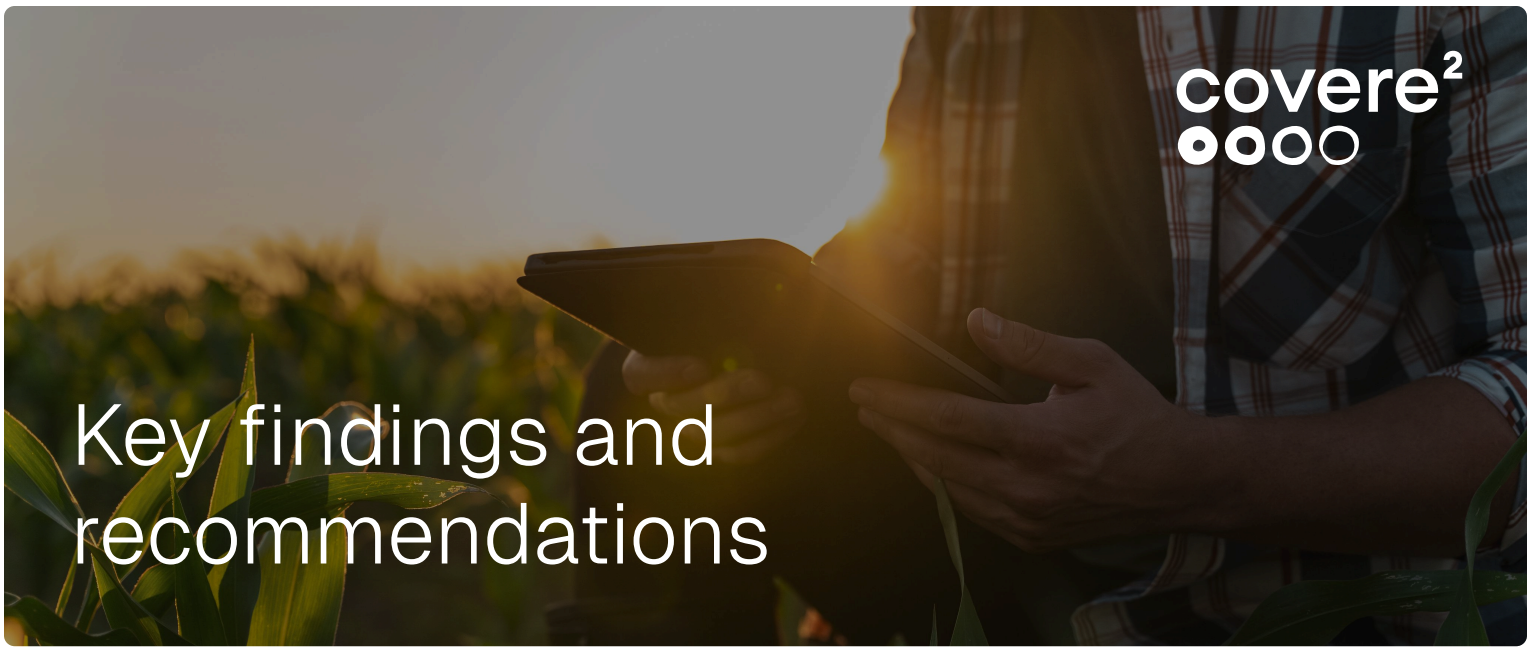
Social

Topic	Subtopic	Document		Conclusions
Own Workforce	Working conditions, Secure employment, Wages, Social dialogue	University Website		Staff benefits | University of Helsinki Being a responsible employer | University of Helsinki Socially sustainable everyday life at the University | University of Helsinki
Own Workforce	Forced labor	University Website		Being a responsible employer | University of Helsinki
Own Workforce	Working conditions, Health and Safety	Safety plan		The document contains **safety measures for employees**, including emergency **evacuation plans**, training protocols, and incident reporting. It aligns with occupational health and safety (OH&S). It defines **roles and responsibilities** and ensures **regulatory compliance** with safety standards. The plan also provides actions to undertake in case of threats from outside the farms (Basic of civil protection and Property's civil defense and nearest civil alarm system).
Own Workforce	Equal treatment and opportunities for all	University Website		Equality and Diversity Plan 2025–2028 The document includes details on the focus areas and measures to promote equality and diversity as an employer and an educational institution and related monitoring, 2025–2028
Workers in the value chain	Working condiitons			There is currently no assessment made on Value Chain employees' working conditions.
Affected communities	Adequate food, Land-related impacts, Security-related impacts			There are no direct information and communication channel between the farm and the local community.

Topic	Subtopic	Document		Conclusions
Affected communities	Communities' civil and political rights, Freedom of expression	University Website		Contact | Viikki Research Farm | University of Helsinki Contact information are stated on the farm's webpage. There is no other process or communication channel to receive concerns from local communities.
Consumers and end-users	Access to (quality) information, Health and safety	Extract from Valio Carbon Calculator		Data sheet to Valio includes metrics on products' quality but the document is not widely distributed.

Governance

Topic	Subtopic	Document		Conclusions
Business Conduct	Corporate culture	University Website		Organisation | University of Helsinki Viikki's farm is linked to the Faculty of Agriculture and Forestry.
Business Conduct	Animal welfare	University Website Safety plan Subsidy Valio		Animals in research | University of Helsinki is covering the topic of animal welfare in research. There is no specific animal welfare policy at the farm. Safety plan includes animals rescue and evacuation section. In addition, Valio has a specific scheme to reward farms with higher Animal Welfare standards with higher price for the products.
Business Conduct	Corruption and bribery	University Website		University of Helsinki anti-corruption policy | University of Helsinki



Key findings and recommendations

Key Findings

The Double Materiality Assessment for Viikki Research Farm identified a total of 120 Impacts, Risks, and Opportunities (IROs), with 91 assessed as material. The analysis reveals a strong sustainability profile, particularly in terms of social impact and climate-related opportunities.

- **Positive Impacts Dominate:** Positive impacts, especially in the **social domain**, stand out (43 in total), notably tied to **Own Workforce** and **Affected Communities**. The farm's role as a university-linked operation significantly boosts social outcomes, such as secure employment, local food security, and educational access.
- **Balanced Distribution of Negatives:** Negative Impacts, Risks, and Opportunities are equally distributed (16 each). Negative environmental impacts center around **Climate Change** and **Pollution**, primarily from livestock emissions, fuel use, and waste.
- **Opportunities in Climate Action:** Climate change emerges as both a key risk and opportunity. Adaptation and mitigation strategies could enhance resilience and unlock financial benefits (e.g., carbon credits, eco-labeling, improved market positioning).
- **Risks in the Social Supply Chain:** A notable risk lies in **social practices across the value chain**, especially concerning worker conditions beyond direct oversight. Despite low likelihood, the potential reputational impact warrants attention.
- **Governance and Biodiversity Strengths:** Governance-related impacts, especially on **Animal Welfare**, are entirely positive, while the urban location enhances the farm's biodiversity contribution.

Recommendations

Strengthen Mitigation Practices:

- Develop a **carbon reduction roadmap** to lower all emissions: methane and fuel-based emissions. the results from the Life Cycle Assessment (LCA) conducted at Viikki could provide valuable insights.
- Explore **renewable energy** alternatives and invest in low-emission farming equipment.
- Anticipate on stricter climate related regulations by being proactive in implementing sustainable agriculture practices.

Capitalize on Climate Opportunities:

- Position the farm as a **living lab for sustainable agriculture**.
- **Diversify agricultural production** to reduce vulnerability to climate change, by shifting away from reliance on cattle and cereal crops towards more climate-resilient alternatives
- Engage in **carbon farming and certification schemes** to generate new revenue streams.

Improve Value Chain Oversight:

- **Build on existing annual tender procedures** by integrating sustainability and ethical performance criteria into supplier selection, especially for fertilizers. This includes requesting disclosures on environmental practices and social standards (e.g., labor conditions, emissions, and traceability of raw materials).
- **Expand ethical due diligence** to cover key partners such as the fertility lab and the slaughterhouse. While these services are essential to operations, closer attention should be paid to their practices, such as animal welfare, ethical treatment, and compliance with labor and health standards, to ensure they reflect the farm's own values and do not expose it to reputational risks.
- **Encourage transparency and accountability** by including sustainability clauses in contracts, conducting periodic spot checks, or requesting third-party certifications where applicable.

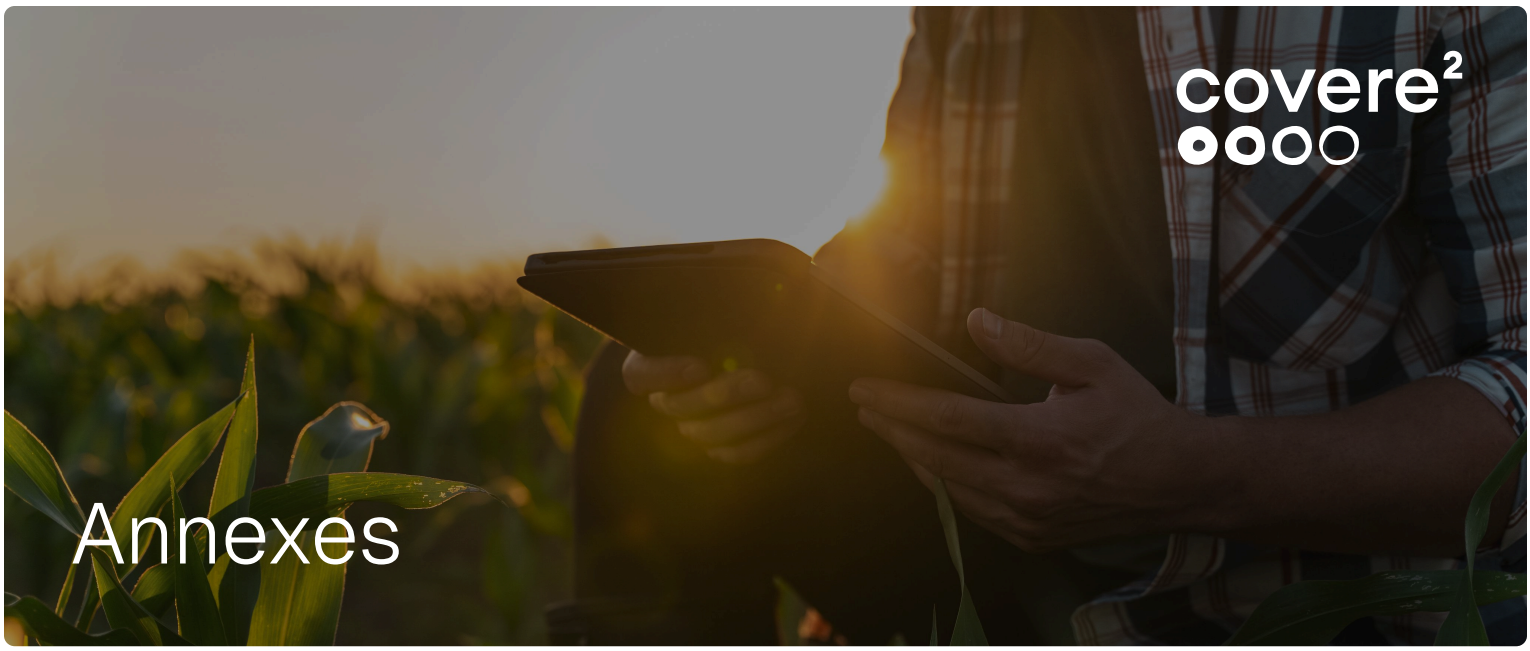
Reduce Waste and Enhance Circularity:

- **Progressively phase out single-use plastics** by identifying alternatives for wrapping and packaging materials, and prioritize biodegradable or reusable options throughout operations.
- **Explore biogas opportunities** by assessing the feasibility of converting organic waste, including manure, into renewable energy, this could support both circularity and emissions reduction goals.
- **Improve traceability and reporting** on waste generation and disposal processes to identify further efficiency gains and areas for reduction.

Figure 10: Silage wrapped in plastic for forage storage at Viikki Research Farm

Advance Communication and Engagement, Especially with Local Communities:

- **Establish a formal feedback and grievance mechanism** to enable local stakeholder, particularly community members, to express concerns, ask questions, and share suggestions in a structured and responsive manner.
- **Organize regular community events or open farm days**, inviting local schools, associations, and residents to visit and engage with the farm's operations, thereby fostering transparency, trust, and public acceptance.
- **Enhance visibility of the farm's sustainability efforts** through communication campaigns, or on-site signage, contributing to stronger stakeholder relationships and reinforcing the farm's role as a model for sustainable agriculture.



Annexes

About COVERE²

COVERE² solution streamlines reporting processes, ensures top-notch data quality, and guarantees compliance with relevant standards, all while equipping companies to pilot their sustainability agenda forward. COVERE² has been developed thanks to the support from the European Union via the co-funding of the European Institute of Innovation and Technology. The project lasted for two years under the leadership of the University of Helsinki.

Our comprehensive offering covers every stage of sustainability transformation, from assessments and gap analysis to data identification, collection, platform selection, reporting, auditing, and disclosure.

Find us at https://covere2.eu/

Complete list of Impacts, Risks and Opportunities (IROs)

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
ESRS E1 - Climate Change					
		Impact Materiality Items			
Climate change adaptation	Through its role as a research and educational platform, the farm empowers the next generation of agricultural professionals and policymakers with tools and strategies to address climate-related challenges, facilitating systemic adaptation across the sector	Posiitive	5	5	Yes
Climate change adaptation	The farm's use of experimental plots to test and implement sustainable agricultural techniques (e.g., improved crop rotations, reduced tillage) enhances soil health and sequesters carbon, aiding long-term adaptation to changing climate conditions.	Positivie	4	4	Yes
Climate change adaptation	The farm's dairy operations, including methane emissions from the 60 dairy cows and manure management practices, contribute to increased greenhouse gas emissions, exacerbating climate change	Negative	5	5	Yes
		Financial Materiality Items			
Climate change adaptation	Reliance on conventional feed production systems (e.g., grass silage, pasture) exposes the farm to potential yield losses due to unpredictable weather patterns such as droughts, floods, or heat waves, unseasonal temperature fluctuations.	Risk	3	3	Yes
Climate change adaptation	Stricter climate regulations, such as limits on agricultural greenhouse gas emissions or requirements for climate-resilient farming practices, could increase compliance costs and additional costs for transitioning to low-emission farming practices (e.g., methane capture systems, alternative feed formulations). In addition, the farms might have to pay potential fines or penalties for non-compliance with evolving climate-related regulations.	Risk	4	4	Yes
Climate change adaptation	Climate change exacerbates risks of soil erosion, salinization, and nutrient depletion, affecting the long-term productivity of arable land leading to Soil Degradation and Reduced Fertility. Consequences can be reduced crop quality and quantity, that could lower farm profitability and increased expenditure on soil restoration efforts and inputs like fertilizers.	Risk	2	0	No
Climate change adaptation	Diversify agricultural production to reduce vulnerability to climate change, by shifting away from reliance on cattle and cereal crops towards more climate-resilient alternatives.	Opportunity	4	4	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
Climate change adaptation	By conducting field experiments and trials, Viikki Research Farm contributes to the development of climate-resilient crop varieties, such as drought-tolerant or heat-resistant plants, which can benefit broader agricultural practices in adapting to climate change.	Opportunity	4	4	Yes
				Impact Materiality Items	
Climate change mitigation	Intensive arable farming can lead to soil carbon depletion and indirect land use change emissions, especially when crop rotations do not prioritize soil health, which reduces the potential for soil to act as a carbon sink and undermines the farm's mitigation objectives.	Negative	4	4	Yes
Climate change mitigation	The farm's research and implementation of regenerative agriculture practices, such as cover cropping and reduced tillage, enhance soil carbon sequestration and contribute to lowering atmospheric CO_2 levels. Sustainable practices reduce the farm's overall carbon footprint while serving as a model for sustainable agricultural practices.	Positivie	3	3	Yes
Climate change mitigation	Livestock farming accounts for over 70% of agricultural greenhouse gas emissions in the EU. This creates a tension between maintaining current farm operations and meeting climate change mitigation goals.	Negative	5	5	No
				Financial Materiality Items	
Climate change mitigation	The growing scrutiny of the livestock sector, along with the increased attraction for vegetarian diet could be a threat for the farm and its operations. Consumer and supply chain shifts toward low- carbon food products (e.g., plant-based alternatives) may reduce demand for dairy-related outputs. It leads to reduced revenue from dairy-related activities and potential costs for transitioning to alternative production systems.	Risk	3	2	Yes
Climate change mitigation	The introduction of stricter carbon pricing or taxes could increase costs associated with methane and nitrous oxide emissions from livestock and fertilizer use. It leads to higher operational expenses due to carbon tax payments on emissions and increased costs for adopting emission-reduction technologies. It might be especially impactful for livestock farms, being pressured to reduce Livestock Emissions via adopting costly methane-reduction practices, such as feed additives or advanced manure management systems.	Risk	2	0	No
Climate change mitigation	The farm could increase their sustainable agriculture practices and get involved into carbon farming projects, getting additional revenue from Carbon Credits, benefiting from increased prices of the products and higher amount of products sold. Achieving certifications could improve the farm's brand and make its services/products more attractive to environmentally conscious stakeholders.	Opportunity	4	5	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
Climate change adaptation	Thanks to their unique position as research farms closely connected to students and future agri-food professionals, these farms have the potential to serve as role models in advancing sustainable farming practices. They inspire the next generation of farmers to lead the transition toward regenerative agriculture, by leveraging digital technologies for example, enhancing their reputation and opening new market opportunities in the process.	Opportunity	3	3	Yes
Climate change mitigation	By testing and promoting alternative protein crops such as faba beans, the farm helps reduce reliance on carbon-intensive imported soy feed, typically sourced from the Americas. This shift not only lowers emissions linked to long-distance transportation but also contributes to preventing deforestation and limiting the import of genetically modified products into Europe. Additionally, diversifying crop sources can reduce costs, open new market opportunities, and potentially command higher prices by aligning with growing demand for more sustainable and healthier food products.	Opportunity	4	2	yes
				Impact Materiality Items	
Energy	By employing energy-efficient equipment (e.g., optimized irrigation systems or energy-saving milking machines), the farm reduces its overall energy consumption and supports climate change mitigation efforts while lowering energy expenses.	Positivie	2	3	yes
Energy	Conventional farming methods, such as the use of heavy machinery and synthetic fertilizers, result in high energy consumption and associated CO_2 emissions. Complementarily, the use of fossil fuels for tractors, generators, and other machinery results in direct emissions.	Negative	2	5	yes
				Financial Materiality Items	
Energy	Reliance on energy-intensive machinery and operations, such as harvesting equipment and synthetic fertilizer production, increases indirect emissions and energy use. In addition to contributing to the farm's carbon footprint and it raises the farm's vulnerability to energy price fluctuations. Fluctuating and rising prices of fossil fuels and electricity could significantly increase operational costs and reduce profitability and competitiveness.	Risk	3	2	Yes
Energy	Further implementation of renewable energy systems (e.g., solar panels, biomass energy from agricultural residues) reduces dependency on fossil fuels and decreases the farm's direct emissions and energy costs while showcasing climate-friendly innovations in agriculture.	Opportunity	3	4	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
ESRS E2 - Pollution					
			Impact Materiality Items		
Pollution of Air	The use of fossil fuels in tractors, generators, and other machinery, along with the application of fertilizers, leads to direct emissions of ammonia and contributes to climate change.	Negative	4	5	Yes
			Financial Materiality Items		
No items					
			Impact Materiality Items		
Pollution of Water	Fertilizer and manure application on arable land can result in nutrient runoff (nitrogen and phosphorus), causing eutrophication in nearby water bodies.	Negative	4	4	Yes
Pollution of Water	The use of pesticides on crops can lead to chemical runoff during rainfall, contaminating groundwater and surface water. It harms aquatic life and creates risks for water quality, leading to possible legal and regulatory consequences.	Negative	0	2	No
Pollution of Water	The farm conducts research on reducing nutrient runoff and enhancing water management practices, contributing to solutions that minimize agricultural water pollution.	Positivie	3	3	Yes
			Financial Materiality Items		
Pollution of Water	Stricter water quality regulations may require the farm to implement more stringent runoff and wastewater management systems. Non-compliance could result in fines or operational restrictions. Fertilizers and manure can harm nearby water bodies, leading to potential lawsuits or reputational damage, creating extra legal costs and potential settlements from claims related to water pollution and loss of partnerships or funding opportunities due to reputational harm.	Risk	2	0	No
Pollution of Water	Excessive or inefficient water use may lead to conflicts over local water resources, resulting in water scarcity issues that could impact farm operations. It would lead to higher costs for water access or treatment and operational disruptions if water usage is restricted by local authorities.	Risk	4	0	No

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
					Impact Materiality Items
Pollution of Soil	Using organic fertilizers, while carefully monitoring heavy metal content, and reducing reliance on synthetic pesticides helps minimize soil contamination and enhance long-term fertility. These practices improve soil quality and biodiversity, promoting more sustainable land use.	Positivie	3	4	Yes
Pollution of Soil	The farm supports research on sustainable soil management practices and methods to remediate contaminated soils, contributing to the improvement of soil quality and ecosystem health. It provides valuable insights and solutions that can benefit the broader agricultural sector and reduce soil pollution.	Positivie	3	5	Yes
Pollution of Soil	The use of diverse crop rotations and cover crops reduce soil erosion and prevents the buildup of harmful substances in the soil. It enhances soil health and reduces vulnerability to pollution from chemical inputs.	Positivie	4	5	Yes
Pollution of Soil	The use of heavy agricultural machinery for plowing, harvesting, and other operations can lead to soil compaction, reducing its permeability and ability to support healthy plant growth. It decreases soil productivity and contributes to long-term degradation.	Negative	3	3	Yes
Pollution of Soil	Improper manure management can result in nutrient overloads, heavy metals, and pathogens being introduced into the soil, contaminating it and reducing its fertility. It harms soil health and increases the risk of polluting surrounding ecosystems.	Negative	3	0	No
Pollution of Soil	Prolonged use of pesticides can lead to the accumulation of toxic substances in the soil, reducing its quality and harming soil organisms. It leads to long-term soil degradation and potential contamination of crops and groundwater.	Negative	2	1	No
					Financial Materiality Items
Pollution of Soil	Accumulation of agrochemicals, improper manure management, or compaction from heavy machinery can degrade soil quality, leading to reduced agricultural productivity, lower yields, increased costs for soil remediation and restoration efforts and overall lower profitability.	Risk	2	3	Yes
Pollution of Soil	Soil contamination from nutrient overloads, pesticides, or heavy metals can expose the farm to legal liabilities, damage its reputation, and jeopardize funding or partnership opportunities.	Risk	3	0	No
Pollution of Soil	Investing further in sustainable practices like precision agriculture, and crop rotation can enhance soil quality and reduce pollution risks, leading to long-term cost savings from reduced fertilizer and pesticide use and enhanced productivity due to improved soil health.	Opportunity	3	4	yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
					Impact Materiality Items
Pollution of living organisms and food resources	Improper manure management or overuse of heavy-metal-containing fertilizers can lead to bioaccumulation of toxic substances in crops and livestock, contaminating food resources.	Negative	2	0	No
Pollution of living organisms and food resources	Establishing natural buffer zones around fields reduces the risk of nutrient runoff, protecting aquatic organisms and maintaining the integrity of nearby ecosystems. It reduces pollution-related harm to living organisms and contributes to the protection of local biodiversity.	Positivie	4	4	Yes
Pollution of living organisms and food resources	By testing and implementing sustainable farming practices, the farm reduces the presence of pesticide residues in food products and minimizes harm to beneficial organisms, contributing to healthier food resources and a safer environment for pollinators and other beneficial species.	Positivie	3	4	Yes
Pollution of living organisms and food resources	The farm's research promotes reduced use of harmful chemicals and innovative farming methods, which can protect living organisms in surrounding ecosystems and ensure cleaner, safer food resources. It enhances biodiversity and reduces harmful pollutants in food and ecosystems, benefiting public health and environmental sustainability.	Positivie	4	4	Yes
					Financial Materiality Items
Pollution of living organisms and food resources	Stricter regulations on pesticide residues or harmful substances in food products may require adjustments in farming practices or testing procedures, leading to increased costs for compliance, such as more frequent residue testing or transitioning to low-residue farming practices and potential fines or market restrictions for non-compliance with food safety standards. Also, detection of harmful residues or contaminants in food products associated with the farm could damage its reputation and partnerships, leading to loss of revenue due to reduced demand for the farm's services or products and increased marketing and public relations costs to rebuild trust.	Risk	2	0	No
					Impact Materiality Items
Substances of concern	Implementing Integrated Pest Management (IPM) strategies reduce the need for chemical pesticides by relying on biological controls and precision application.	Positivie	4	5	Yes
Substances of concern	Use of Substances with Persistent Environmental Impact, such as some agrochemicals used on the farm which include substances that persist in the environment, accumulating in soil and water, and harming biodiversity.	Negative	2	0	No

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
Substances of concern	Improper application of synthetic fertilizers and pesticides can lead to leaching into soil and water systems, contaminating ecosystems and potentially entering the food chain. It contributes to long- term environmental degradation and risks to public health.	Negative	2	0	No
					Financial Materiality Items
		No items			
					Impact Materiality Items
Microplastics	The use of plastic materials, such as mulch films, greenhouse covers, or irrigation pipes, can degrade over time, releasing microplastics into soil and water systems. It contributes to soil and water pollution, with potential long-term harm to ecosystems and food safety.	Negative	4	2	Yes
					Financial Materiality Items
Microplastics	Continued reliance on plastic-based agricultural products due to cost or availability can lead to an accumulation of microplastics in farm operations. It increases environmental degradation and potential regulatory and reputational risks.	Risk	3	2	Yes
Microplastics	Switching to biodegradable alternatives for mulch films, seed coatings, and other plastic inputs can cut microplastic emissions, lower long-term costs by avoiding regulatory penalties and cleanups, and open access to premium, sustainability-focused markets.	Opportunity	3	2	Yes
		ESRS E4 - Biodiversity and Ecosystems			
					Impact Materiality Items
Direct impact drivers of biodiversity loss > Land-use change, fresh water-use change and sea- use change	Agriculture is essential in preserving the natural landscape, a role that is especially significant considering the farm's unique location in the heart of Helsinki.	Positivie	5	5	Yes
Direct impact drivers of biodiversity loss > Land-use change, fresh water-use change and sea- use change	Growing single crops over large areas reduces genetic diversity and makes ecosystems more vulnerable to pests, diseases, and environmental changes. It weakens the ecosystem resilience and contributes to biodiversity loss.	Negative	2	3	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
Direct impact drivers of biodiversity loss > Land-use change, fresh water-use change and sea- use change	Research and implementation of sustainable farming practices, such as crop rotation, agroforestry, and reduced pesticide use, help maintain biodiversity on and around the farm. It supports local ecosystems by providing habitats for pollinators, birds, and other wildlife, contributing to biodiversity conservation.	Positivie	3	3	Yes
					Financial Materiality Items
No items					
					Impact Materiality Items
Impacts and dependencies on ecosystem services	Implementing and maintaining sustainable agricultural practices, such as cover cropping, reduced tillage, and organic amendments, helps restore degraded land and improve soil health. These practices enhance ecosystems by boosting soil fertility, increasing carbon sequestration, and reducing erosion. This is particularly important given the Viikki farm's location at the heart of an urban center. Without the farm, the land would likely be repurposed for real estate development, losing its environmental and ecological value.	Positivie	3	3	Yes
Impacts and dependencies on ecosystem services	Use of broad-spectrum pesticides can harm non-target species, including pollinators, birds, and aquatic organisms, reducing their populations. It accelerates population decline and increases the extinction risk of vulnerable species.	Negative	3	0	No
					Financial Materiality Items
Impacts and dependencies on ecosystem services	The strategic location of the land, highly sought after by real estate investors, makes it particularly valuable. Once the agreement expires, there is a risk that the city could repurpose the land for development, potentially replacing its agricultural use with urban expansion.	Risk	4	0	No
Impacts and dependencies on ecosystem services	The presence of grasses on the farm reduces the immediate reliance on pollinators, but the loss of biodiversity still reduces essential ecosystem services and soil fertility. The risk is a decreased productivity, higher costs for soil enrichment and lower yields and reduced profitability.	Risk	4	0	No
Impacts and dependencies on ecosystem services	The unique position of the farm, located near the sea where water levels fluctuate, may disrupt natural water regulation services. This disruption can lead to increased risks of water scarcity or flooding. These challenges could result in higher costs for sourcing water or implementing flood mitigation measures, as well as potential damage to infrastructure or crops due to uncontrolled water events. Such instability can reduce operational efficiency and add financial strain to the farm's management.	Risk	3	2	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
ESRS E5 - Circular Economy					
			Impact Materiality Items		
Resources inflows, including resource use	The extensive use of non-recyclable materials, such as single-use plastics for wrapping, contributes to environmental pollution and waste accumulation.	Negative	4	5	Yes
			Financial Materiality Items		
Resources inflows, including resource use	The use of synthetic fertilizers, pesticides, and fossil-fuel-powered machinery increases dependency on finite, non-renewal resources and exacerbates environmental degradation. It raises the farm's operational costs as resource prices rise or supplies diminish.	Risk	3	5	Yes
			Impact Materiality Items		
Resource outflows related to products and services	Downstream Environmental Impact of Products or services with unsustainable lifecycle impacts, such as fertilizers with high runoff potential, may harm ecosystems downstream.	Negative	2	2	No
Resource outflows related to products and services	All manure is collected and reused on the farm, enhancing soil quality. This practice of utilizing byproducts adds value and supports a circular economy. However, biogas technology has not yet been implemented.	Positivie	5	5	Yes
			Financial Materiality Items		
Resource outflows related to products and services	Reusing agricultural byproducts, such as manure, helps save costs while reducing waste. Generating biogas can create additional revenue streams, provided the initial investment is covered.	Opportunity	3	3	Yes
			Impact Materiality Items		
Waste	Recycling materials and use of recycled materials like plastic, metal, and paper from farm operations minimizes waste generation and promotes resource efficiency. It supports waste reduction goals, reduces disposal costs, and aligns with sustainability practices.	Positivie	3	4	Yes
Waste	Utilizing organic waste, such as manure converted into liquid form and applied to fields as a nutrient source, helps reduce waste while creating valuable byproducts. This practice decreases landfill waste, lowers greenhouse gas emissions, and improves soil quality, all of which contribute to a circular economy.	Positivie	4	5	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
Waste	Effective systems for waste segregation and recycling may lead to lower waste disposal volumes and opportunities for resource recovery. It decreases waste management costs while supporting sustainability performance.	Positivie	4	4	Yes
Waste	Improper or inadequate disposal of materials like pesticides, chemical containers, or expired feed can result in soil and water contamination and harmed local ecosystems.	Negative	5	0	No
Waste	The use of single-use plastics or non-recyclable materials in farm operations, generating non- biodegradable waste, contributes to landfill waste and environmental pollution. It increases the farm's waste footprint even though waste is typically disposed of according to standard waste management procedures.	Negative	4	5	Yes
				Financial Materiality Items	
Waste	Manure is fully utilized as fertilizer, but other Waste-to-Resource initiatives, such as biogas production, create new revenue streams by reducing waste volumes. These initiatives generate additional income through the sale of renewable energy or compost, while also offering cost savings by decreasing reliance on external waste management services.	Opportunity	3	4	Yes
		ESRS S1 - Own Workforce			
				Impact Materiality Items	
Working conditions > Secure employment	Non flexible scheduling and no or limited remote work possibility might challenge workers to balance personal and professional responsibilities.	Negative	4	5	Yes
Working conditions > Secure employment	Limited Career Progression and lack of structured development paths may demotivate employees.	Negative	3	4	Yes
Working conditions > Secure employment	Seasonal fluctuations can create overwork for workers.	Negative	4	5	Yes
Working conditions > Secure employment	Efficient Shift Management optimizes workload without overburdening employees.	Positivie	4	5	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
Working conditions > Secure employment	Providing training improves workforce adaptability and long-term employability.	Positivie	3	4	Yes
Working conditions > Secure employment	Long-term contracts provided to the six employees at the farms enhances job security and employee satisfaction.	Positivie	4	5	Yes
Financial Materiality Items					
Working conditions > Secure employment	The link with the University enables the possibility to offer stable working conditions, job security, upskilling and training opportunities to the employees, which improves employees satisfaction, operational capability avoiding recruitment costs and staff shortage during peak seasons.	Opportunity	4	5	Yes
Impact Materiality Items					
Working conditions > Adequate wages	Competitive Salaries attract and retains skilled workers.	Positivie	4	5	Yes
Financial Materiality Items					
No items					
Impact Materiality Items					
Working conditions > Social dailogue	Regular Meetings with employees and their representatives improves communication and trust. Transparent Decision-Making encourages employee involvement and understanding.	Positivie	3	4	Yes
Financial Materiality Items					
No items					
Impact Materiality Items					
Working conditions > Health and safety	Provision of Safety Equipment enhances employees well-being and trust.	Positivie	4	5	Yes
Working conditions > Health and safety	Proactive Risk Assessments reduce workplace accidents and injuries.	Positivie	3	4	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
			Financial Materiality Items		
Working conditions > Health and safety	Workplace injuries have financial Impact, as it increases costs for compensation and insurance.	Risk	2	4	Yes
Working conditions > Health and safety	Poor Safety Protocols can lead to legal liabilities and reputational harm, generating higher absenteeism and turnover rates.	Risk	2	2	No
			Impact Materiality Items		
Equal treatment and opportunities for all > Gender equality and equal pay for work of equal value	The farm consists of five females and three males, with equal representation in leadership positions, ensuring balanced decision-making and leadership.	Positivie	3	3	Yes
			Financial Materiality Items		
No items					
			Impact Materiality Items		
Equal treatment and opportunities for all > Employment and inclusion of persons with disabilities	Inaccessible Workspaces prevent persons with disabilities from contributing effectively.	Negative	2	5	Yes
			Financial Materiality Items		
Equal treatment and opportunities for all > Employment and inclusion of persons with disabilities	Workplace Discrimination Claim can generate legal costs and settlements and negative publicity affecting market position.	Risk	3	0	No

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
Equal treatment and opportunities for all > Employment and inclusion of persons with disabilities	Collaboration with Disability Advocacy Groups could give access to funding and subsidies for inclusive practices and improved stakeholder relationships and brand image.	Opportunity	3	3	Yes
Impact Materiality Items					
Equal treatment and opportunities for all > Measures against violence and harassment in the workplace	The university has implemented of Anti-Harassment Policies, creating a safe working environment, which increases employees trust and engagement.	Positivie	3	5	Yes
Financial Materiality Items					
No items					
Impact Materiality Items					
Other work-related rights > Forced labour	Zero-Tolerance Policies Against Forced Labour ensures ethical practices and compliance with legal standards.	Positivie	4	5	Yes
Financial Materiality Items					
No items					
ESRS S2 - Workers in the Value Chain					
Impact Materiality Items					
Working conditions > Secure employment	Lack of oversight on subcontractors which may not adhere to secure employment standards increases reputational risks.	Negative	3	0	No
Working conditions > Secure employment	The reliance on short-term contracts with suppliers, such as the annual mandatory call for tenders for fertilizers, undermines job security for workers in the value chain by creating uncertainty and instability.	Negative	3	4	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
					Financial Materiality Items
Working conditions > Secure employment	Partners with unstable employment practices may disrupt supply chain reliability, leading to increased costs due to delays in sourcing or service disruptions and reputational damage if partners are found to offer insecure jobs.	Risk	4	2	Yes
Working conditions > Secure employment	Weak oversight over subcontractors may lead to poor employment conditions, impacting the brand image. Consequences might be legal liabilities and increased auditing costs and loss of partnerships with sustainability-conscious clients.	Risk	3	2	Yes
Working conditions > Secure employment	Long-Term Partnerships with Ethical Suppliers lead to enhanced operational stability and trust and cost savings through streamlined and ethical partnerships.	Opportunity	4	2	Yes
					Impact Materiality Items
No items					
					Financial Materiality Items
Working conditions > Health and safety	Partners with inadequate health and safety standards increase the risk of accidents, absenteeism, and reputational harm for Viikki Research Farm. It might lead to increased costs for addressing operational delays caused by incidents and reputational damage affecting market standing and stakeholder trust.	Risk	3	2	Yes
Working conditions > Health and safety	Non-compliance with safety standards among value chain partners could expose Viikki Research Farm to indirect legal liabilities leading to fines and penalties for association with non-compliant partners and costs for transitioning to safer and more reliable suppliers.	Risk	3	2	Yes
					Impact Materiality Items
No items					
					Financial Materiality Items
Other work-related rights > Forced labour	Indirect links to forced labour practices by subcontractors may harm reputation and invite legal scrutiny.	Risk	3	2	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
ESRS S3 - Affected Communities					
			Impact Materiality Items		
Communities' economic, social and cultural rights > Adequate food	Support for Sustainable Agriculture enhances long-term food security for communities.	Positivie	4	4	Yes
Communities' economic, social and cultural rights > Adequate food	Contribution to Local Food Security with research and farming innovations improve crop yields, benefiting local food availability and affordability.	Positivie	4	4	Yes
			Financial Materiality Items		
No items					
			Impact Materiality Items		
Communities' economic, social and cultural rights > Land-related impacts	Poor land management practices may lead to Environmental Degradation, such as soil erosion, loss of biodiversity, and long-term harm to local ecosystems.	Negative	2	2	No
Communities' economic, social and cultural rights > Land-related impacts	Sustainable Land Use Practices, such as preventing over-cultivation and erosion benefit both the farm and surrounding communities.	Positivie	3	2	Yes
			Financial Materiality Items		
No items					
			Impact Materiality Items		
Communities' economic, social and cultural rights > Security-related impacts	Failure to address community safety concerns and ignoring issues like theft or vandalism may harm relationships and operational efficiency.	Negative	2	2	No

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
Communities' economic, social and cultural rights > Security-related impacts	Collaborating on local safety programs and partnering with local authorities improves overall security for the affected communities, while maintaining order to ensure a secure environment for both the farm and communities.	Positivie	3	4	Yes
Communities' economic, social and cultural rights > Security-related impacts	Transparency in Land and Resource Use via open communication about operational impacts fosters trust and reduces conflicts.	Positivie	3	3	Yes
			Financial Materiality Items		
Communities' economic, social and cultural rights > Security-related impacts	Failure to Address Local Safety Concerns via neglecting theft, vandalism, or violence may harm relationships and worker safety. It can lead to increased insurance and compensation costs and reduced worker morale and productivity.	Risk	3	3	Yes
			Impact Materiality Items		
Communities' civil and political rights > Freedom of expression	Encouraging open communication and feedback during project planning enhances trust and inclusivity in decision-making processes.	Positivie	3	3	Yes
			Financial Materiality Items		
Communities' civil and political rights > Freedom of expression	Poor or lack of communication about operations may result in misinformation and community opposition. It can generate costs for rebuilding trust and implementing communication improvements and delays in operational timelines due to community resistance.	Risk	4	2	Yes
Communities' civil and political rights > Freedom of expression	Establishing or strengthening Transparent Feedback Mechanisms would reduce risks of conflict through proactive issue resolution and enhance trust with local communities, improving operational stability.	Opportunity	3	2	Yes
Communities' civil and political rights > Freedom of expression	Hosting Community Forums could lead to improved relationships with stakeholders reducing operational risks and cost savings from smoother project approvals and community buy-in.	Opportunity	4	2	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
ESRS S4 - Consumers and End-Users					
				Impact Materiality Items	
Information-related impacts for consumers and/or end-users > Access to (quality) information	End-users of the farm are also communities nearby, in Helsinki and in Finland, who are provided with a place where can be witnessed farming activities and animals at the center of the city. It is especially valuable for children.	Positivie	5	5	Yes
Information-related impacts for consumers and/or end-users > Access to (quality) information	End-users also include students, researchers, and future professionals engaged in educational activities. Through its strong connection with the University, the farm plays a vital role in training the next generation of farmers, many of whom will take over family farms, thereby helping to preserve the fabric of rural communities in Finland.	Positivie	4	2	Yes
Information-related impacts for consumers and/or end-users > Access to (quality) information	Overloading consumers with too much technical or irrelevant information may reduce clarity and satisfaction.	Negative	2	0	No
Information-related impacts for consumers and/or end-users > Access to (quality) information	Providing comprehensive and truthful information about products to the customers (such as Valio) enhances consumers and end-users satisfaction and trust. Ensuring product information is available across accessible platforms improves inclusivity and consumer experience.	Positivie	4	4	Yes
				Financial Materiality Items	
No items					
				Impact Materiality Items	
Personal safety of consumers and/or end-users > Health and safety	Promotion of Sustainable and Safe Farming Practices via reducing chemical residues or harmful byproducts, improves consumer health and environmental safety.	Positivie	3	4	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
					Financial Materiality Items
Personal safety of consumers and/or end-users > Health and safety	Contaminated products due to lapses in quality control may harm consumer health, leading to recalls and lawsuits. It will generate increased costs for product recalls and legal settlements and cause dramatic reputational harm reducing market trust and sales.	Risk	4	0	No
Personal safety of consumers and/or end-users > Health and safety	Certification for Product Safety might open access to premium markets emphasizing quality and safety standards and increase revenue from safety-conscious consumers.	Opportunity	2	0	No
					ESRS G1 - Business Conduct
					Impact Materiality Items
Corporate culture	The organization maintains a stable culture, anchored to the University of Helsinki, with a robust governance structure, established policies and procedures, and a clearly defined code of conduct. It upholds core values such as non-discrimination, innovation, collaboration, and support for science	Positivie	5	5	Yes
					Financial Materiality Items
	No items				
					Impact Materiality Items
Animal welfare	Ensuring proper living conditions and veterinary care reduces stress and disease, leading to healthier animals and better-quality outputs. It increases operational efficiency and product quality, reducing costs related to animal health management.	Positivie	5	5	Yes
Animal welfare	Utilizing the farm's infrastructure for research on sustainable and ethical animal husbandry practices supports progress in animal welfare science. However, the existing building imposes certain limitations that may restrict the scope or scale of these activities.	Positivie	2	3	Yes
Animal welfare	Implementing and promoting high animal welfare standards aligns operations with ethical expectations and strengthens trust with stakeholder	Positivie	5	5	Yes

ESRS Topic	IROs Description	Negative / Positive	Impact Magnitude	Impact Likelihood	Assessed as material?
					Financial Materiality Items
Animal welfare	Failing to meet established animal welfare standards, causing welfare violation, could lead to regulatory fines, legal challenges, and reputational harm. It leads to increased costs for implementing corrective actions and compliance measures, and can cause loss of market access, especially in regions or sectors requiring certified animal welfare practices.	Risk	4	0	No
Animal welfare	Failure to provide clear information about animal welfare practices can lead to Valio and consumer mistrust and opposition from advocacy groups. It creates reputational risks, reduced sales, and strained stakeholder relationships.	Risk	2	2	No
Animal welfare	Livestock sector is under a lot of scrutiny, which can lead to consumer Backlash from Perceived Poor Welfare Practices. Negative publicity or activism from advocacy groups may reduce consumer trust and stakeholder confidence. It leads to reduced revenue due to decreased demand from ethical consumers and increased costs for public relations and damage control.	Risk	1	3	No
Animal welfare	Implementing best practices in animal welfare strengthens ethical positioning and attracts socially conscious consumers and investors. It also entails obtaining certifications such as Global Animal Partnership or equivalent demonstrates commitment to ethical practices. It increases market access to premium ethical markets and enhances brand reputation leading to long-term customers loyalty.	Opportunity	4	2	No
					Impact Materiality Items
No items					
					Financial Materiality Items
Management of relationships with suppliers including payment practices	Partnering with suppliers failing to meet ethical or regulatory standards can harm the company's reputation and expose it to legal consequences. It creates costs for remediation and replacing non-compliant suppliers and reputational harm reducing consumer trust and market access.	Risk	3	0	No