

ESTABLISHED

Mistra Food Futures

Programme Year Three









Established

Mistra Food Futures
Programme Year Three



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Mistra Food Futures is now truly established

Changing the way we produce, process and consume food is one of our most pressing, and at the same time, challenging questions.

The current food system adversely affects the climate, environment and public health. Given the security policy situation and climate changes, the food system also needs to become more resilient.

Therefore, providing scientific knowledge and evidence on how to create a food system that delivers healthy food to everyone, even under challenging conditions, without depleting the nature and without emitting greenhouse gases is central to building a sustainable society.

I am glad and proud to see that after three intense years, Mistra Food Futures has been truly established as a platform for numerous stakeholders in the transformation of the food system based on scientific evidence. With its holistic approach and numerous results, the program is valuable for both the public and private sectors, contributing to policy-making and business development.

Change involves inclusion and a stronger consensus on the direction we need to take. Ideas and different experiences need to meet and be discussed with an open mind. The programme's design, involving many stakeholders and partners, is key to its success. Working in silos is no longer possible. Mistra Food Futures represents the opposite and paves the way for a more sustainable and healthy food system.



ANNICA SOHLSTRÖM
Director General, Swedish Food Agency. Chairperson of the Board, Mistra Food Futures

Change involves inclusion and a stronger consensus on the direction we need to take. Ideas and different experiences need to meet and be discussed with an open mind.

Mistra Food Futures – established

Mistra Food Futures is now about three and a half years into its endeavours. Looking back, we can conclude that much has happened over those years. Both in the programme and in the surrounding environment.

We started the programme with an over-arching vision to create a science-based platform that contributes to transforming the Swedish food system into one that is sustainable and resilient and that delivers healthy diets. We end the third programme year by concluding that Mistra Food Futures has definitely established itself as the science-based platform we envisaged. Moving forward, we aim to maintain and develop the programme's ambitious activities in gathering food system actors and researchers around the scientific inquiry about how the food system can transition towards greater sustainability and resilience.

These activities are needed now more than ever.

Our part of the world is still significantly impacted by the increased

geopolitical tensions following Russia's invasion of Ukraine in 2022. At the battlefield, the war causes human suffering beyond reason. But the war also impacts the economic systems and following this, 2023 was another year in which the food system struggled with volatile input prices and increasing consumer prices. When peace in our part of the world no longer can be taken for granted, preparedness with respect to the food system is now higher up on the political agenda than most of us have ever experienced.

At the same time, the growing season 2023 was another reminder about how extreme weather conditions can impact the possibilities to produce food in the ways we are used to. An extraordinary dry first part of the growing season adversely impacted the early growth of the crops and an equally extraordinary wet autumn significantly delayed the harvest and caused poor product quality. Of course, we cannot say that the weather conditions of one specific year was due to climate change, but the significant scientific

evidence of global climate change underlines that extreme weather events with extended droughts and very wet periods will become more common. The summer of 2023 was a taste of the future and we need both mitigation and adaptation strategies to be able to cope. The food systems, at the heart of societies by providing the food everyone needs on a daily basis, are both causing global climate change by unsustainable production practices and dietary patterns, but are also an important part of the solution. The Swedish food system – including its production and consumption - is no exception.

In times of unrest it is easy to jump to conclusions. But living in times of multiple crisis we need keep multiple discussions running simultaneously and we need to systematically search for solutions that will lead us in the right direction on several dimensions. Increased preparedness with respect to the food system and the food system sustainability transformation can and should move hand in hand.

Science based discussions among multiple food system actors is needed more than ever to push the food systems onto a more sustainable and resilient path where food supply can be secured through sustainable production methods and consumption patterns. In its third programme period, as a truly established science-based platform, Mistra Food Futures has increased its production of important and new insights and analyses needed to understand how the food system can move into a more sustainable and resilient direction.

Let's continue into the fourth programme year to further develop and explore scientific results and make them useful for societal change. This is needed now more than ever.



Helena Hansson



Per-Anders Hansson

HELENA HANSSON

*Professor, Programme Director Mistra Food Futures,
Department of Economics, SLU*

PER-ANDERS HANSSON

*Professor, Programme Director Mistra Food Futures,
Department of Energy and Technology, SLU*

Science based
discussions among
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Vision - A science-based, collaborative platform

The overarching vision of the **Mistra Food Futures programme is to create a science-based platform that contributes to a transformation of the Swedish food system into one that is sustainable, resilient and that delivers healthy diets. We take a holistic approach to sustainability and consider three dimensions of the concept: environmental, economic and social.**

By taking a systemic perspective and addressing issues related to agriculture and food production, as well as to processing, retail and consumption, Mistra Food Futures aims to play a key role in initiating an evidence-based sustainability and resilience transformation of the Swedish food system. The programme is a part of a force leading the transformation of the Swedish food system and inspires research and action internationally.

Mistra Food Futures has created a unique platform of partners, including companies, authorities, regions and academic researchers from the entire food system, all collaborating for transformative change. The programme is comprised of some 18 partners together with three core academic and research institute partners.

Our four main strategies are as follows:

1

Identification and synthesis of on-going research on how to achieve net-zero greenhouse gas and sustainable agricultural systems as well as sustainable food value chains.

2

Research into actions to fill key knowledge gaps for achieving sustainable transformation at all levels in the food system.

3

An encompassing approach to sustainable development, covering its environmental, economic and social dimensions.

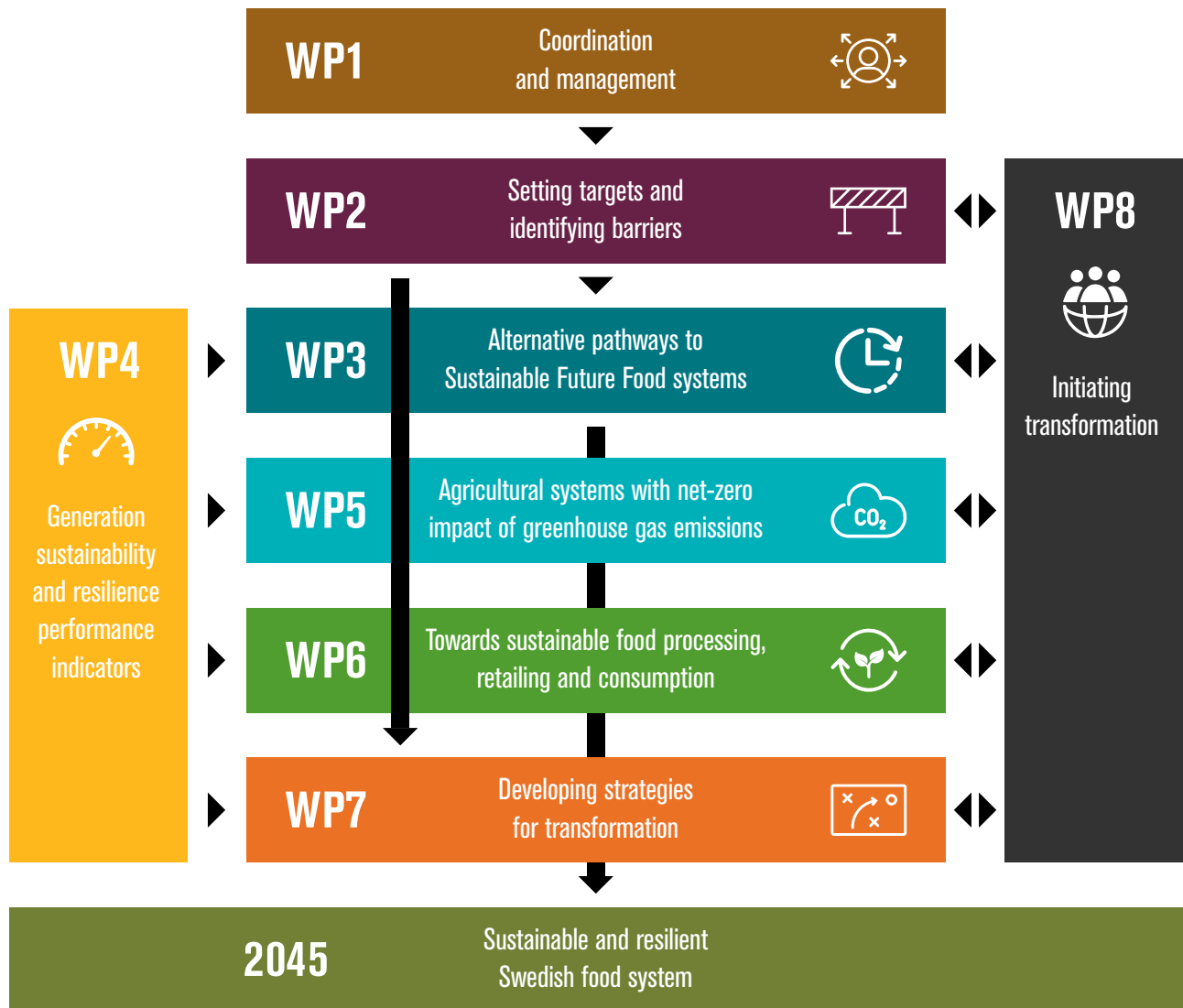
4

Initiation of a transformation process, together with stakeholders.



Work package 1–8 in brief

Mistra Food Futures is organised into eight distinct but highly coherent work packages (WPs) designed to work in close iteration to deliver individual and joint results centred around four main strategies.



WP1



Coordination and management

Leading and ensuring scientific rigour as well as knowledge transfer, uptake and exploitation of results, and an efficient and transparent management structure. Building and developing Mistra Food Futures' identity and brand. Communicating and disseminating project results to relevant stakeholders and society at large (public affairs).

WP leaders: Helena Hansson and Per-Anders Hansson

WP2



Setting targets and identifying barriers

Setting targets that a sustainable and resilient food system needs to achieve, identifying likely barriers to these targets, and exploring strategies to turn the barriers into leverage points for change.

WP leader: Malin Jonell

WP3



Alternative pathways to Sustainable Future Food systems

To help find policy options for good decisions. Explores alternative pathways towards the sustainable food system targets identified in WP2. Indicators from WP4 are used to identify trade-offs and the resilience of the pathways is assessed against factors that may impact future food systems, such as greenhouse gas emissions and socioeconomic and technological developments.

WP leader: Line Gordon

WP4



Generation sustainability and resilience performance indicators

Indicators for assessment and progress monitoring. With an interdisciplinary approach, the WP develops a conceptual framework for a sustainable food system and the next-generation sustainability and resilience performance indicators to assess and monitor performance of the food system in delivering food from a system that is sustainable and resilient.

WP leader: Helena Hansson

WP5



Agricultural systems with net-zero impact of greenhouse gas emissions

Agricultural systems with net-zero impact on greenhouse gas emissions are identified to explore agricultural systems with the potential to make agriculture net-zero regarding GHGs by 2045, as well as to deliver on several of the targets as defined in WP2.

WP leader: Per-Anders Hansson

WP6



Towards sustainable food processing, retailing and consumption

Sustainable supply chains – combining real production with the bigger system. WP6 aims to generate knowledge and processes for designing the post-farm supply chains of the future. By addressing the very complex questions via a structured and transparent process, all participants will achieve a much deeper understanding, and hence be better prepared for making decisions.

WP leader: Ulf Sonesson

WP7



Developing strategies for transformation

A transformation of the food system requires change in practices and behaviours of food system actors, including primary producers, consumers, retailers, food production and service companies, and governmental agencies and actors. But how can such changes in behaviours and practices be initiated and scaled up for transformative change, especially in a turbulent world? Such understanding requires knowledge about drivers and motivators of change for food system actors. WP7 contributes to filling this knowledge gap and provides an understanding about how drivers and motivators of food system actors can be modified, enhanced, or completely redesigned for rapid transformative change.

WP leaders: Therese Lindahl and Helena Hansson

WP8



Initiating transformation

Exchange of knowledge and experience with community stakeholders and industry. Initiates transformation by engaging food system actors in close iteration to co-develop strategies for achieving a sustainable and resilient food system and to develop projects and transition experiments that enable transformative change by actors. Testing the new strategies and results derived from other WPs.

WP leader: Maria Hellström

In good company

The establishment of **Mistra Food Futures** signifies the creation of a science-based platform where researchers, companies, and authorities focused on building a sustainable and resilient food system can convene, interact and engage in discussions. A common perspective among partners is that the program's systemic approach was a key factor in attracting participation, and the partnership has proven to be a source of valuable knowledge and inspiration. The opportunity to engage in researchers' work, exchange perspectives with other stakeholders across the entire food chain, and participate in discussions has been highly beneficial.

Collaborations extending beyond the work packages have been a notable outcome of the partnerships formed within the program. Examples of such collaborations include program researchers participating in scientific reference groups for government commissions by the program's public authority partners. One example is the governmental commission by the Public Health Agency and the Food Agency, focused on defining goals and indicators for sustainable and healthy food consumption within

the barn- och ungdomsavdelningen (child and youth department) and utredningsenheten (investigation unit). Program researchers have also contributed science-based knowledge to the Food Agency's governmental commission regarding the implementation of the Nordic Nutritional Recommendations in Sweden. Moreover, new research projects have been granted through collaborations between program researchers and societal partners.

To construct, sustain and enhance the multi-actor consortium around Mistra Food Futures, we have primarily focused on five main activities:

1

Mistra Food Futures' dialogues

serve as monthly opportunities (during the academic year) for all participants in the program to convene and deliberate on current topics. In 2023 the focus has been on the outcomes from the various work packages. These dialogues are conducted as online meetings, commencing with a presentation by a member of the consortium to introduce the day's topic, followed by an informal discussion among the participants.

The round table discussions

entail closed meetings between societal partners and the WP-leaders, held under the Chatham House rule. This rule allows everyone to utilize the information shared but prohibits disclosing who said what, facilitating discussions on pressing questions of common interest. Past round-table discussions have delved into topics such as how to sustain a focus on food system transformation towards sustainability within organizations during ongoing regional conflicts and how to maintain the transition focus amid price inflation unseen in the past thirty years, where producers and consumers have limited prior experience.

2

3

Individual Work Package (WP) activities

involve research and other tasks that rely on intensive multi-actor interactions to refine research questions and discuss results and implementations. These activities encompass both general discussions and interactions about the research, as well as significant involvement of societal actors in workshop interactions for certain research tasks. In these instances, particular attention has been paid to ensuring that research integrity is not compromised.

The internal newsletter

has been published six times during 2023. This newsletter serves as a vital tool to keep all members of the consortium informed about ongoing activities within the program. Its importance is particularly highlighted for individuals who are only moderately involved in the program.

5

The Mistra Food Futures' consortium meeting

is an annual event where the entire program gathers for a lunch-to-lunch event. The purpose of this gathering is to inspire participants, discuss program results and contextualize these results in relation to ongoing societal developments.

4

*Thank you, all partners,
for your commitment, inspiration,
critical reflections and contributions
to the programme.
We work together for a sustainable food system.
/Mistra Food Futures*



Working together is the key, says Lars-Erik Lundkvist, agronomist and business policy expert at LRF.

Close cooperation with research, in this case Mistra Food Futures, has led to an increased awareness that the responsibility for the transition lies with the entire chain. We all need to take responsibility for our part.



Lars-Erik Lundqvist

– The partnership with Mistra Food Futures has given LRF unique opportunities to meet different types of actors along the entire food chain, which we probably would never otherwise have met in this way. We have all come into the programme with different perspectives and expectations, different approaches and goals for future production and consumption, which is both challenging and enriching.



It was the systems thinking in the programme that attracted the participation, says Pia Lindeskog, expert at the Public Health Agency.

– This collaboration has really shown us how important it is that we as an authority are involved in highlighting the public health perspective. We have received both knowledge and support in different ways by participating in various dialogues, in individual conversations with researchers and by taking part in several of the reports that have been published. The collaboration has also resulted in Helena Hansson, programme manager for Mistra Food Futures, were part of our reference group linked to a government commission, which was very valuable. An effective partnership means exchange, and this has certainly been the case.



Pia Lindeskog

– Being able to take part in researchers' work, to discuss and break perspectives with other actors along the entire food chain has been so valuable. It has been good and interesting for us to take home a number of facts, but also to constantly sharpen our thinking and see what we can contribute to Mistra Food Future's work.



It was the systemic approach of working with future food consumption and production that attracted the partnership, says Åsa Domeij, Head of Sustainability at Axfood.

The mix of activities invited by Mistra Food Futures has been rich and varied. A real smorgasbord where participants have had the opportunity to meet the researchers up close, had the chance to meet different actors in the food chain, lectures, discussions and dialogues in small groups, both physical and digital meetings on broad and narrower themes. There has been time for discussions and to provide input.



Åsa Domeij

– Personally, it has been very valuable to me in my role to get tips on where to read more about things I need in my work, reports and interesting articles. With busy days, there is not always time, even if you want, to look for the necessary information and knowledge. This has really helped me to stay up to date with current research.





Young researchers' network

Training young (early career) researchers, including research assistants, PhD students, and post-doctoral researchers, is fundamental in academic activity. To facilitate networking and professional development among the young researchers in the program, we initiated a young researcher network about one year into the program, with targeted activities to foster collaboration and networking among the young staff members of the program, as well as extending to young staff members in related projects.

The primary objective of the network is to establish a cross-disciplinary forum where participants can learn more about different research areas relevant to the transition to sustainable food systems and explore opportunities for collaboration within and across disciplines.

In its early stages, the network has mainly organized online meetings to facilitate young researchers within Mistra Food Futures in getting to know each other. During the year, new steps have been taken, and in November, around twenty members of the network gathered for a physical conference.

Here are three highlights on how Mistra Food Futures has impacted the professional training among our early career staff members.



Helena Robling

As a PhD student in the program, **Helena Robling** has the opportunity to participate in all the activities organized by Mistra Food Futures in collaboration with government authorities, companies, and organizations. This serves as a valuable source of practical knowledge and experience from various actors within the Swedish food system. It is an inspiring experience that also demands continuous adaptation and consideration of the fact that the research pursued should have practical utility.

– An important lesson is that the sooner knowledge and experience from external actors are integrated into the research process, the more likely it is that the results will be practically applied.

Once you've begun working in an interdisciplinary manner, it becomes challenging to revert to a more isolated approach because you become aware of essential perspectives that must be considered. Yes, it may take a bit more time, but the ultimate goal is to gain valuable insights that contribute to results and solutions that address real-world issues, says Helena.



Mehran Rad

Mehran Rad is in the early stages of his career and as he describes it, still a long way from being an experienced senior researcher. He is impressed by the respect, attention and support he receives from the work package leader, senior researchers and professors,

who not only listen to him, but also want to learn from him and support his ideas.

– I have had a fantastic start to my research career, and I'll always remember the trust and support I received from the more senior researchers.



Hanna Karlsson Potter

Hanna Karlsson Potter who specializes in environmental systems analysis at SLU, emphasizes the value of the interdisciplinary approach, which offers researchers a substantial advantage by enabling them to access a wider network of contacts. This facilitates

connections and collaborations not only with researchers within their own field but also with those engaged in research and activities beyond their specific domain. Such an approach provides opportunities for collaboration with external stakeholders and researchers from diverse disciplines, other universities, research institutes and organizations.

– It's both stimulating and enriching to witness how your own research can contribute to the work of others, while also actively participating in the research of others. The interdisciplinary approach unquestionably enhances and introduces important perspectives to the research process.



Results

The formulated targets have served as a reference point for the four food system scenarios developed in the program.



Targets

Climate, biodiversity and health targets for the Swedish food system

The program has developed a set of food system targets in conjunction with its production of scenario outlines and its formulation of an indicator framework for assessing sustainability in the Swedish food system. Climate change and biosphere integrity are recognized as fundamental planetary boundaries due to their potential to significantly alter the Earth system. Furthermore, human health is prioritized as essential for sustainable food systems. Consequently, in a recent report we summarise targets focused on three core target areas: Biodiversity, Climate, and Diet quality & health. The formulated targets have served as a reference point for the four food system scenarios developed in the program. The report summarizing the targets was finalized in 2023 and published in January 2024.

Dialogue series to unpack barriers and strategies to reach targets

To explore barriers and strategies to reach the targets a dialogue series with Mistra Food Futures' partners and other key stakeholders was conducted in late 2022 and early 2023. The four scenarios developed in the program were used as a starting point and the discussions centered on identifying barriers and leverage points.

Collaboration across the entire value chain emerges as a recurring theme across the scenarios, although the specific levers vary depending on the envisioned future trajectory. Greater consolidation within the value chain is seen as a facilitator for scenarios like "Food as Industry" and "Food as Food Tech," which have the potential to achieve sustainability goals through large-scale production. Conversely, closer connections between producers and consumers through smaller, local cultivation is regarded as a lever against both "Food as Culture" and "Food Forgotten."

To transition toward a sustainable food system, drawing elements from all four scenarios and a combination of the outlined levers is likely crucial. This necessitates closer collaboration among stakeholders, including policymakers. The need for extensive cooperation is particularly evident, whether focusing on technology, product development, establishment of new business models, or knowledge enhancement within the industry or among consumers, all aimed at effecting systemic change. However, careful consideration must be given to potential risks associated with intensified collaborative efforts, notably the emergence of monopolistic entities capable of inflating pricing structures and fostering inefficiencies within market-oriented solutions. In other words, addressing specific sustainability challenges may inadvertently worsen others. Hence, collaborative efforts should be closely monitored to understand risks and success factors better.

Scenarios

Four alternative diets for each scenario

During the third project year, the four scenarios for Swedish food system transformation – Food as Industry, Food as Food Tech, Food as Culture, and Food Forgotten – were further developed with both qualitative and quantitative detail.

Four alternative diets have been developed to represent the eating habits in each scenario. The resulting diets are a quantitative representation of the scenario narratives, developed through an iterative scenario modelling methodology. These resulting diets consider key variables in the Swedish food system such as import share proportions, waste reduction, shifts to more plant-based diets, increases in technology, and development of Swedish food culture or industry. Ongoing work will assess each scenario diet and their relation to health, climate, and biodiversity targets.

Study on plant-based alternatives in Swedish diets

A new study on plant-based alternatives in Swedish diets informed the work on scenario diets. The study investigated the environmental, nutritional, and economic implications of replacing animal-source foods (ASFs) with plant-based alternatives (PBAs) or whole foods (WFs) in the Swedish diet. Modelling vegan, vegetarian, and flexitarian scenarios, each based on PBAs or WFs, the study found that replacing ASFs with PBAs can reduce the environmental impact of current Swedish diets while meeting most nutritional recommendations, but slightly increases food expenditure. Replacing ASF with WFs has comparable environmental benefits but decreases food expenditure. The study findings recommend prioritizing ASF reduction and diversifying WFs and healthier PBAs to accommodate diverse consumer preferences during dietary transitions. Apart from informing the work on scenario diet composition, the article also aligns findings from the scenario development: reducing ASF consumption is critical to meeting environmental targets for the Swedish food system, but there are alternative paths for doing so.

Ongoing work will assess each scenario diet and their relation to health, climate, and biodiversity targets.

Systems mapping of food system mechanisms

A semi-quantitative modelling study of the scenarios was also carried out. This work included a systems mapping of food system mechanisms contributing to the development of each scenario, as well as semi-quantitative modelling of how the mechanisms interact. The work validated the internal consistency of the scenario narratives developed during the two first years of Mistra Food Futures. It also found cases where the four scenarios had either shared or competing mechanisms, suggesting synergies and goal conflicts between different transformation strategies. Particularly, it points to the cascading effects of food culture on production systems, the potential for collaboration between agricultural actors, and the possibility of benefits to alternative agricultural systems from stricter environmental policy. Identifying and understanding the implications of such drivers, synergies, and trade-offs is important as food systems transformation is a policy priority in Sweden, yet there is little information on how and what these futures would look like and how they would be achieved.

Sustainability indicators

A framework for food system sustainability assessment in Sweden

Moving towards a sustainable food system requires well-designed sustainability indicators that can be used to set priorities, monitor progress, make comparisons, evaluate impact of activities to support transition towards sustainability, and to assign responsibility. However, equally important is a well-thought through conceptual framework, which from a theoretical perspective can explain what food system sustainability actually means. Good data is another key point for food system sustainability measurement.

In two recent studies, we have focused on sustainability frameworks, indicators and data availability for sustainability assessment.

We first developed a conceptual framework to clarify both the components of a sustainable food system and how the components are interrelated. The framework identifies the societal aim of the food system to produce *healthy and adequate diets for all*, and ensuring a *just, equitable and ethical food system*. The system rests on environmental pre-conditions that needs to be respected, ensuring a *clean and healthy planet* and the *maintenance*

of the natural capital. Finally, the system uses *two types of enablers*, the economic system with profitable and resilient businesses that can ensure production and a governance system that can ensure that the actors of the system to act in a way that supports a clean and healthy planet and maintenance of the natural capital while delivering healthy and adequate diets for all from a just and fair food system. Note that the model focuses on the food system as such, not individual actors.

We suggested indicators to match details of all components of the model, aiming at indicators that can assess food system sustainability at the system level, and also to separate between territorial and consumption based impacts. It can be noted that not all indicators that we considered important to assess food system sustainability can be measured from currently available data; several important indicators are missing in available data. This highlights important gaps in data which needs to be addressed both in future research and in various initiatives to collect data on large scale.

The critical role of data for sustainability assessment at farm level

Taking a deep focus on data, we have investigated register data availability for holistic sustainability assessment at farm level, using dairy farms as an example and aiming to comprehensively cover environmental, social and economic aspects of sustainability. We used a literature review and an expert consultation to identify which indicators should be assessed. Following this, we made an inventory of available data, a matching and gap analysis and a critical assessment of the data. Data issues have to be considered significant; as many as 20 indicators mapped onto 12 of a total of 20 considered sustainability themes were problematic. Most problems were found around farm-level indicators for pesticides, non-renewable energy and soil quality. Findings are useful for discussions on indicator quality and can inform initiatives aimed at collecting and compiling data for sustainability assessment at the farm level for comparison and cause-and-effect analysis.

Net-zero food production

Specific measures with potential to decrease the climate impact

The work to assess different individual measures with potential to decrease the climate impact from the primary production continues to present valuable results.

Crop breeding is an obvious measure for mitigating greenhouse gas emissions. One Mistra Food Future study focused on opportunities from crop breeding to mitigate climate change while simultaneously securing yield and food requirements, exemplified by winter wheat cultivation in Northern Europe. Nitrogen uptake efficiency (NUpE) was indicated as the character with the highest potential to contribute to climate change mitigation, with positive effects also from increased straw length and stubble heights, while increased total biomass yield (root or above-ground) showed less effect. An increase in nitrogen uptake efficiency by 15% through plant breeding has the potential to result in reduced GHG emissions corresponding to 30% of the fossil fuel use in agriculture in Sweden.

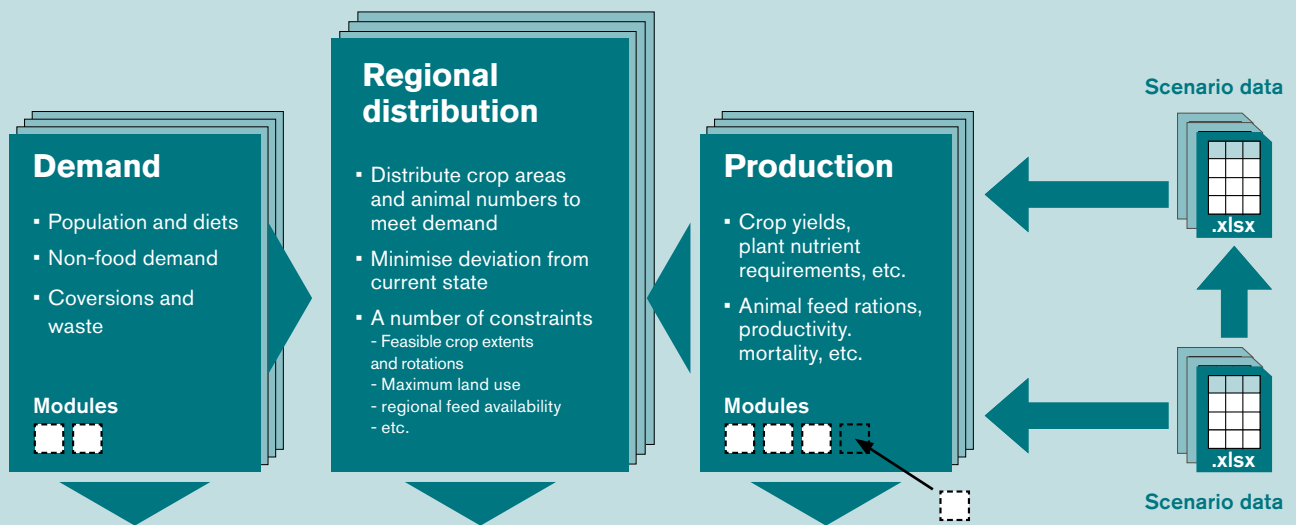
Three of the considered measures relate to the fisheries and aquaculture sector. One interesting example is a study aiming to evaluate the environmental sustainability implications of shifting to more regional and circular feed inputs for rainbow trout. Fish were produced in net pens in Sweden and fed either a conventional feed, or an experimental feed in which 60% of the protein content derives from novel ingredients (insects, blue

mussels, sea squirts and fava bean protein isolate) sourced from the Nordic countries to replace land animal by-products (i.e. blood meal and poultry by product meal) and soy protein concentrate. Results show that the novel feed reduces greenhouse gas emissions of one kg of rainbow trout by around 63 %.

Total climate effects of the Swedish agricultural sector

An extensive computational model (called CIBUSmod) has been developed in Mistra Food Futures. This model calculates in its present version the time-dynamic climate effects (as well as some other important environmental indicators) of all activities in the agricultural sector including the effects of the soil carbon dynamics. In CIBUSmod, Sweden is geographically divided into 106 smaller areas with separate assessments for each crop and animal types in each area. The effects of different scenarios for the development of the crop and animal production systems, the amount of different types of food needed to produce and other affecting factors can be calculated for each year from the base year 2020 until year 2045 and beyond. The first publication based on results from the model is now published and the model is planned to be the methodological base for a large number of activities the coming years, both funded by Mistra Food Futures and as a result of external collaborations.

A mass-flow model of the Swedish agri-food system



IMPACT ASSESSMENT

Sustainable food value chains beyond agriculture

Towards sustainable food supply chains

The work focused on sustainable post-farm supply chains has focused on finalising three case studies in collaboration with partner companies. Approximately 10 case-specific workshops were arranged during 2023, each involving four to six participants from RISE, SLU and partner companies from industry and retail. These dialogues contribute to an increased understanding about our different challenges and methods, which is an important outcome and support a sustainable development. Empowering individuals and organisations is a vital part of sustainable development that is needed in parallel to developing more traditional results.

During the year a report describing the developed working process was published (Mistra Food Futures Report #18). The report describes the long process that started at the on-set of Mistra Food Futures and involved the project group of researchers and partner companies. The report described a structured four-step process that facilitates a broad project group to develop concrete, product-centered future supply chains. These descriptions are used as a basis for discussions on what future systems might look like and how they might support a transformation towards sustainability. In the process the Mistra Food Futures scenarios developed in 2022 was an integral part. By including broad competence regarding food production and products in the group the supply chains developed are relevant and feasible.

Evaluating sustainability performance of food supply chains

We have developed a Multi-Criteria Assessment (MCA) approach for evaluating the sustainability performance of the suggested food supply chains. MCA is a well-established method but applications in the food systems are rare, hence there was a need to adapt the approach. It takes its point of departure from the framework developed within Mistra Food Futures but add aspects that are needed to evaluate supply chains rather than larger systems and provides a comprehensive description covering all relevant aspects of sustainability, described as indicators. We have created weights and dependencies between 13 sustainability aspects by a survey sent to all types of food system professionals within Mistra food Futures as well as to partners' networks. To be able to better assess sustainability performance for future systems based on the Mistra Food Futures Scenario-skeletons we quantified differences in weights between indicators. This was done using a survey sent to individuals that are experts or very experienced in scenario thinking and methodology.

Strategies for transformation

Do you change your mind with more information?

Transitioning food systems to be more in line with sustainable development requires behavioural changes among actors in the food system.

But how to achieve change? Often we hear that 'if we only provide information, then...'. Can preferences change if people are provided with balanced sustainability information based on scientific knowledge?

We tested if an information intervention in terms of balanced sustainability information would impact dairy farmers' preferences for more grass-based feeding systems for their cows. More grass-based feeding systems for cows would have many environmental sustainability benefits and also imply that animals to a larger extent would be fed crops that are inedible for humans. Our results highlight that on average, the effects on preferences were only negligible, but when considering different segments separately, there are some evidence of an effect of an information intervention. Overall, our results point to that only supplying information is not enough.

Overall, our results point to that only supplying information is not enough.

Food preparedness and sustainability: at odds or hand-in-hand? The case of school meals in Sweden

Recent efforts to increase the food preparedness of Swedish municipalities call for an examination of how sustainable development and resilience is addressed in preparedness planning – is environmental sustainability considered a tool, a threat, or just not relevant? We sent out a national survey and held follow-up interviews to explore synergies and trade-offs between crisis preparedness and sustainability in the context of the school meal operations in Swedish municipalities. Results are still in preparation but indicate several important aspects: 1) Considering that many municipalities are in the midst of planning for how the school meal operations should function in the event of a crisis, the present moment represents a unique window of opportunity for deliberately exploiting synergies between increased preparedness, resilience, and sustainability. 2) The increased focus on preparedness has not (as of yet) led to any substantial de-prioritization of environmental sustainability but recent increase in food prices might have done so, in particular we see a trend away from organic food in school meals. 3) We see a clear trend towards a localization of school meals, which has the potential to – under the right circumstances – bring along sustainability advantages. In a new risk landscape, having diverse food suppliers in the nearby area is valued more now than before. 4) Because municipalities around the country are at very different stages in their preparedness planning and environmental ambitions vary considerably, they would benefit from a clear national strategy that treats food preparedness and a sustainability transition of food systems as interconnected policy areas.

Initiating transformation

Transition management

In Transition Management, work has focused on understanding the role of business models in driving transformation and how organizational capabilities for transformative change can be developed. Two workshops were conducted in early 2023 on the role of business models in sustainable transitions, and how business models can evolve in different scenarios. Close to 60 organizations participated, providing their knowledge and perspectives in the process, and contributing to a collective learning. The key results from the workshops were the dialogue itself between food systems actors, establishing a transformative learning that can help shift, and challenge, entrenched ways of working and mental models of the food system. The outcome of the workshops and dialogues were further the shared understanding of the scenarios developed in the programme, that the future does not necessarily develop in the way that we want or expect it to, and that we can influence the direction of change; and a shared understanding of transformative processes and how business models can enable or hinder a change. The insights were summarized in the report "The Value of Dialogue in System Transition – Paths towards a Sustainable Food System," published in June 2023.

Fossil-Free Food Value Chain

Due to a strong interest in continuing the dialogue on business models and transitions, the project "Actor Collaboration for a Fossil-Free Food Value Chain" was initiated in late spring 2023. The project is co-led by Mistra Food Futures and the Swedish Agency for Economic and Regional Growth to develop a collaborative model for shared value creation towards a fossil-free value chain. The project has gathered a large group of organizations in a reference group and a smaller group actively involved in co-creating the results. The outcome from the work includes a canvas outlining a networked business model for collaborative value capture in the areas of fossil-free packaging, production, and distribution. The process has highlighted the difficulty in defining areas of emissions to be tackled, where actors can influence the system and that need collaborative action. With many areas in need of change, from fertilizer to fuels, wider systemic and societal benefits of tackling one area of emissions over another were examined – aiming to find leverage points that could impact multiple levels. The project landed in packaging, production, and distribution as areas to collaborate and create shared value around, as, for example, improving packaging could have positive effects on both production and distribution of food and vice versa. The work will continue with the model for collaborative value creation being tested and implemented in regional cases during the spring of 2024.

For non-academic partners, gaining knowledge to address problems of strategic importance is of value, as knowledge can form the basis to act.

Implementation projects

Stakeholder engagement activities undertaken as part of the programme's implementation projects focused on facilitating and extending collaboration between academic and non-academic partners (e.g. private and public actors). The principal purpose of such collaborations was to build productive relations between academic and non-academic partners for co-creating knowledge and action in pursuit of sustainable transformations of food and farming practices. We learned that this kind of collaboration must add value to all participants involved. For non-academic partners, gaining knowledge to address problems of strategic importance is of value, as knowledge can form the basis to act. Here, academic collaborators can help co-create knowledge to inform action. For academic partners, collaboration can add value by putting academic knowledge up against empirical reality, to create case studies to be learned from, as well as to build relations with non-academic partners. Building on the lessons learned about stakeholder engagement activities to facilitate collaborations between academic and non-academic partners we identify opportunities to further extend such activities. Collaborations can be organized at three levels:

- 1)** between non-academic partners and undergraduate teaching activities e.g. MSc projects,
- 2)** between non-academic partners and post-graduate students where PhD students and
- 3)** between academic and non-academic partners.

Mistra Food Futures Programme Year Three

2023, another interesting year, full of several scientific results, meetings, important and interesting talks. In this third programme report from Mistra Food Futures, besides all research results, we present key activities and share some third programme year insights, reflections, aims and ambitions.



Analysis conducted on how opinions were formed among participants in the Swedish Food Agency's citizen panel, with a specific focus on sustainable food consumption.

Mistra Food Futures' consortium meeting

Food Forward – Looking to the future

On October 17-18, over 50 researchers, partners, and stakeholders convened for the annual programme conference. The event provided an opportunity for attendees to meet, discuss, and gain inspiration. Aligned with the conference theme, it featured inspiring sessions and a diverse array of presentations showcasing research results from the various work packages, along with a future outlook.

Oct
17

Oct
18

ALMEDALEN

1. Participation in the panel for Mistra's seminar on the theme "Food, consumption, and materials - achieving sustainable and healthy food systems," which was based on the four scenarios from report #1 – Food as industry, food as tech, food as culture, and food forgotten.
2. Participation in The Nordic Council of Ministers' and The Nordic Councils panel on the new Nordic Nutritional Recommendations, which had sparked a heated debate in Sweden during the spring 2023.



Insights from MFFs future scenarios were used in the biodiversity scenarios connected to the IPBES Natures Futures Framework and in the anthology Defining Agroecology.



The Food Science Sweden Conference 2023 – Research and innovation for Food Security, SLU

A conference addressing food security and the need for collaboration between academia and stakeholders to develop knowledge.

POLICY BRIEF

- A safer and tastier future
- input for the food strategy 2.0

Interparliamentary Conference at the Swedish Parliament on Circular Bioeconomy

Invited to contribute our expertise to an interparliamentary conference attended by participants primarily from EU national chambers and parliaments, the European Parliament, the Icelandic and Norwegian parliaments, as well as several youth associations at national and EU levels. dissemination and public affairs.



Parliamentary seminar

Opportunity to present and discuss MFF's input to Food Strategy 2.0.

8 dialogues with focus on the results of each WP

9 reports

19 scientific articles

9 blogs

8 workshops

1 table talk



Collaboration among stakeholders for a fossil-free food value chain.

In collaboration with the Swedish Agency for Economic and Regional Growth (Tillväxtverket), the programmes is engaged in stakeholder collaboration to develop a fossil-free food value chain. The aim is to identify initiatives, investments, and potential policy interventions to implement a network business model for an environmentally sustainable transition that is also profitable.

Collaborations within two governmental commissions



- Governmental commission on measures for sustainable and healthy food consumption, the Food Agency and the Public Health Agency.
- Governmental commission to analyze, based on the Nordic Nutrition Recommendations 2023, how environmental sustainability aspects can affect Swedish food production and update the Swedish dietary guidelines, the Swedish Food Agency.

Dissertation

Johan Nilsson, a doctoral candidate within Mistra Food Futures successfully defended his PhD thesis “Grass and cover crops for biogas production and climate change mitigation: A life cycle perspective”.

Public Affairs

Public affairs and relationship building is key to achieving real impact.

As a common theme in what we do within Mistra Food Futures, the work on public affairs has become an increasingly natural part. It is evident to us that research needs to be integrated into the political processes at an earlier stage. We have decided to do what it takes to reach decision-makers. Ideologies, populism and not least disinformation may have strong footholds in society, but that only highlights the need for us to be even more proactive.

Step by step, we are finding ways for our research to contribute to informed political decisions, at the local, regional, national and European levels. We have several ongoing processes.



What's cooking: Year Four

The programme is in an intense research implementation phase and has intensified its public affairs activities. These activities will continue in the fourth programme year with a strong focus on scientific excellence and on societal impact.



Setting targets and identifying barriers

Gather and outline the existing body of evidence concerning public policy interventions that have been put into practice, proposed, or have the potential for implementation to encourage environmentally sustainable food consumption. The central research question guiding our review was: What evidence is available regarding the impact of public policy interventions designed to promote environmentally sustainable food consumption? A systematic meta review (review of reviews) was conducted to synthesize best available knowledge.



Alternative pathways to Sustainable Future Food systems

The quantitative development of the four Mistra Food Futures scenarios will be a key focus for deliverables. A first step will be an article outlining of the methods/process of developing the scenario skeletons and the narrative descriptions. The next step will be to quantify the amounts and types of foods in a diet for each scenario, then, using available data, assess how far each diet is from achieving the consumption-based targets for climate, biodiversity and health. Using another method of testing and developing the scenarios, a publication built from an MSc thesis will use fuzzy cognitive mapping to develop causal loop diagrams for each scenario and some scenario combinations. A second focus will be the identification of the types and prospects of novel and alternative foods in future food systems modeling and scenario building. In collaboration with SLU and WP5, this year will also see the assessment of the Swedish agricultural system using the CIBUSmod to explore the agriculture system and domestic targets under each Mistra Food Futures scenario.

WP4

Next generation sustainability and resilience performance indicators

Analysis of the food system sustainability framework developed in WP4, by populating the framework with data for Sweden, and an analysis of synergies and trade-offs of sustainability indicators. In ongoing work, we are now in a process of collecting data to populate our conceptual framework, the *Food System Sustainability House*, with data to explore sustainability patterns and trends in the Swedish food system.

Analysis of how food system actors (with focus on the middle-chain actors) use sustainability indicators and how the uptake and use of indicators is determined from their characteristics. In ongoing work, we are now in a process of collecting information about what sustainability indicators are used, based on information dispatched in the actors' sustainability reports. In on-going work, we also analyse how consumers use sustainability information in their purchasing decisions.

WP5

Agricultural systems with net-zero impact of greenhouse gas emissions

The scientific articles describing the development and methodology of the model to quantify the GHG emissions and other effects from the national agricultural sector will be finalised in 2024. Scientific articles will also be developed on the assessment of different future scenarios and the work to find national systems potentially net-zero in GHGs. Furthermore, articles from the continued work to assess additional individual measures to decrease especially the GHGs from the agricultural sector will be presented.

WP6

Towards sustainable food processing retailing and consumption

Finalising three supply chain case studies and publishing results. - Dissemination within MISTRA Food Futures of case study results for post-farm supply chains and method development by a dedicated workshop. - International dissemination by a presentation at the 18th International European Forum (IglS-Forum*) (18th EAAE Seminar) on System Dynamics and Innovation in Food Networks.

WP7

Developing strategies for transformation

Developing a policy brief which summarises the main findings from WP7, regarding questions about what policy schemes to support uptake of more sustainable production practices would be acceptable to farmers, what policy schemes to encourage more sustainable diets would be acceptable to consumers and how can costs related to transformation be handled.

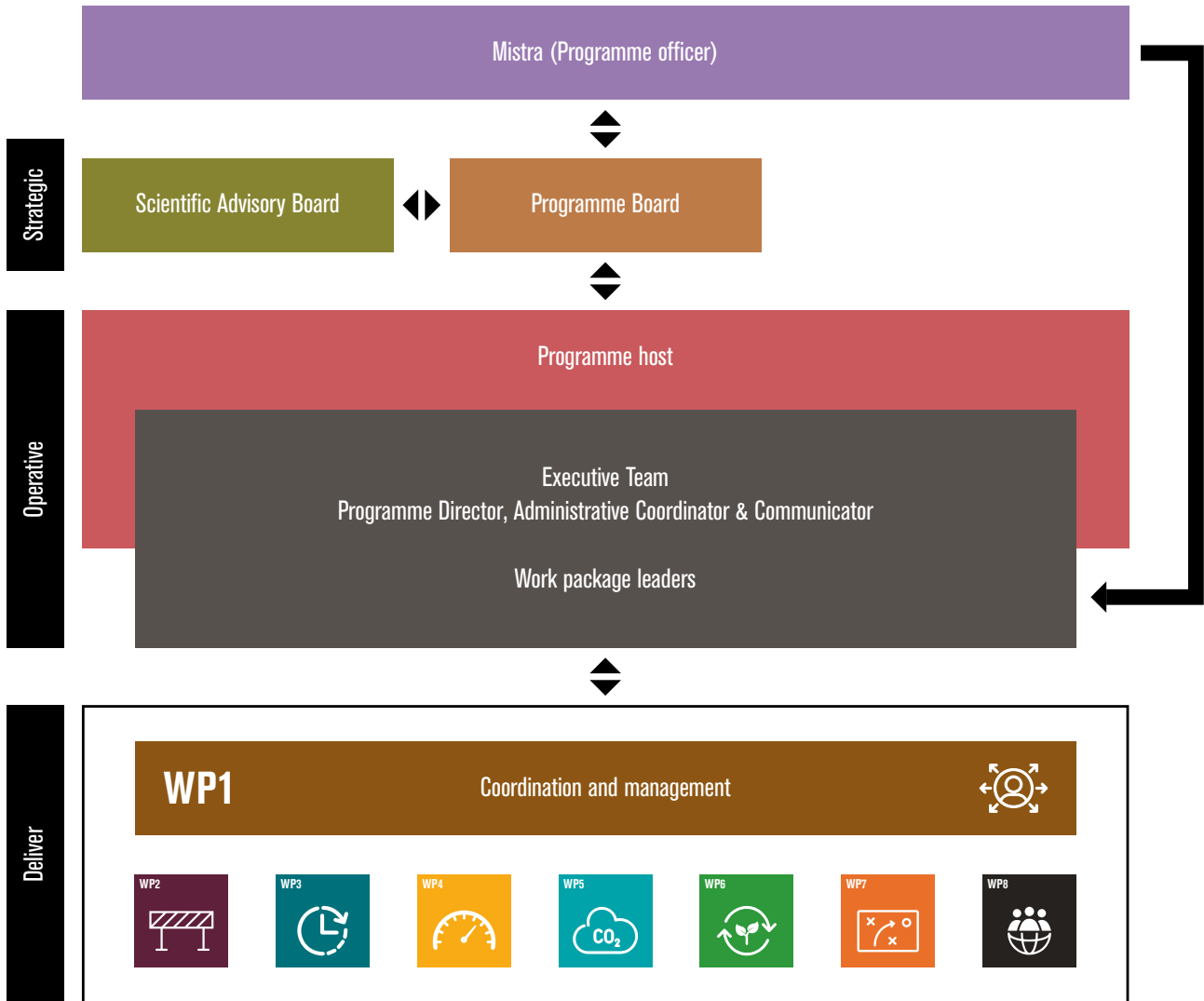
Mapping levers and barriers for achieving food system transformation through mobilization of mid-supply chain actors (both public and private). One study in progress hones in on the role of municipalities and school meals and asks if there are synergies and/or trade-offs between sustainability targets and strategies and improved preparedness for external risks and shocks. This study will be aligned with existing and planned for work by the Swedish Food Authority. A second study aims to investigate perceived barriers and enablers for food system transformation among key food companies and retailers (and different roles and functions in the companies) using mental model mapping and interviews as a method. Data will be collected and analysed in spring 2024.

WP8

Initiating transformation

Developing a scientific article analyzing the process and results from the dialogue series on futures, transitions and business models that was held in 2023. The article will be a reflective account on transformative learning, how established ways of thinking can be changed, among incumbents in the food system to enable a sustainable transition. A second scientific article is also being planned, based on the collaborative process carried out between WP8 and the Swedish Agency of Economical and Regional growth. Describing how networked business models and design spaces can be used to define shared value capture and identify policy interventions in a transition towards a fossil free food value chain.

Organisation



Programme Board

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Programme Directors

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Per-Anders Hansson

Programme coordinator

Annsophie Wahlström

Economy

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WP-leaders

WP1: Helena Hansson
Per-Anders Hansson

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WP3: Line Gordon

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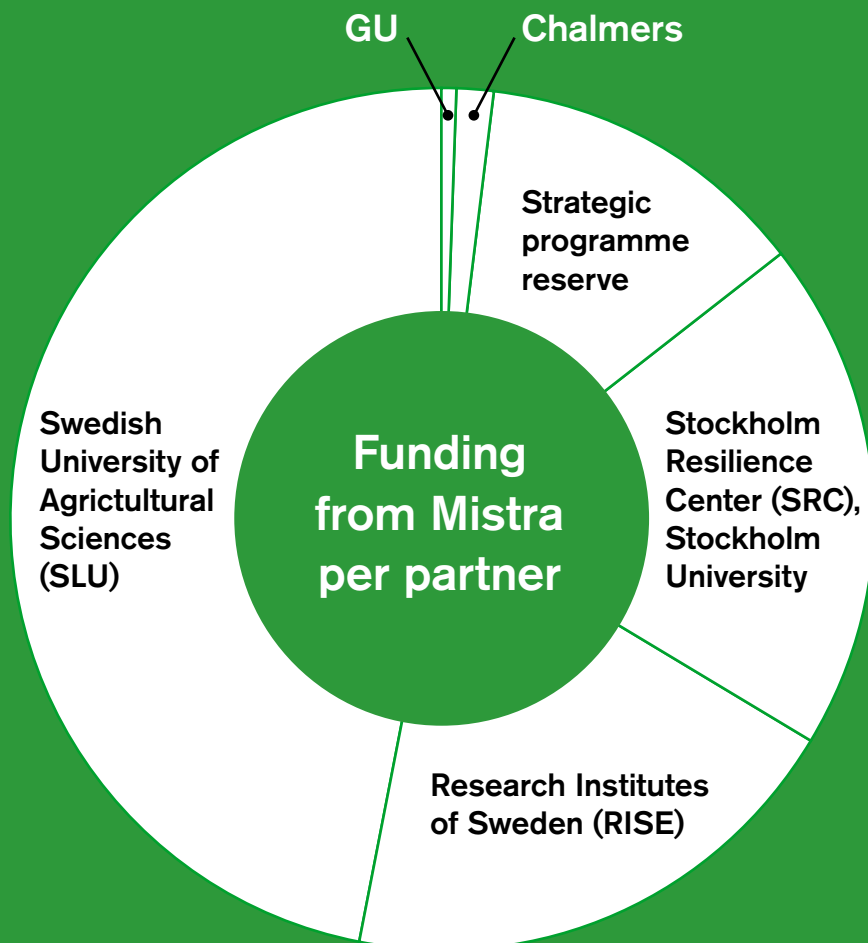
WP6: Ulf Sonesson

WP7: Therese Lindahl
Helena Hansson

WP8: Maria Hellström

Funding

Funding from Mistra per partner	SEK
University of Gothenburg	400 000
Chalmers Technology University	993 000
Strategic programme reserve	8 000 000
Stockholm Resilience Center (SRC), Stockholm University	12 280 000
Research Institutes of Sweden (RISE)	12 383 000
Swedish University of Agricultural Sciences (SLU)	29 944 000
Total	64 000 000



Appendix

Doctoral dissertations 2023

Johan Nilsson Grass and cover crops for biogas production and climate change mitigation - A life cycle perspective, SLU Doctoral thesis to be presented 231124

Oscar Lagnelöv Electric autonomous tractors in Swedish agriculture, SLU Doctoral thesis 2023:13

Reports and Policy briefs 2023

Bernesson, S., Karlsson Potter, H., Hansson, Per-Anders. (2023). Mistra Food Futures Rapport. #19 Rapport Energieffektivisering i lantbruket.

Sonesson, U., Amani, P., Bjerre, K., Hamberg, L., Höglund, E., Karlsson, A. H., Olsson, Pousette, S., Röös, E., Östergren, K. (2023). Mistra Food Futures Report. #18 Ramverk för design av mer hållbara leveranskedjor från gård till butik.

Ziegler, F., Axelsson, A., Sanders, C., Hornborg, S. (2023). Mistra Food Futures Report. #17 Rapport Sverige och sjömaten.

Persson, B., Norefjäll, F. (2023). Mistra Food Futures Report. #16 Rapport Värdet av dialog i systemomställning.

Johansson, M. (2023). Mistra Food Futures Report #15. Lärdomar från kursen Evidensbaserad problemlösning.

Hansson, H., Säll, S., Abou Hatab, A., Röös, E., Tidåker, P., Berggren, Å., Lundqvist, P., Magnusson, U., Rydhmer, L., Zhu, L., Ahlgren, S., Hallström, E., Persson, U. M., Winkvist, A. (2023). Mistra Food Futures Report #14. A framework for measuring sustainability in the Swedish food system.

Langeland, M., Ziegler, F., Wocken, Y. (2023). Mistra Food Futures Report #13. Food Futures Report Greenhouse gas emissions of rainbow trout fed from the Baltic region evaluated using Life Cycle Assessment.

Karlsson Potter, H., Kätterer, T., Lang, R. (2023). Mistra Food Futures Report #12. Climate impact of liming arable soil – effect on N₂O emissions in a life cycle perspective.

Mistra Food Futures Policy brief. En tryggare och godare värld. Ett inspel till Livsmedelsstrategi 2.0. (2023). <https://mistrafoodfutures.se/content/uploads/2023/05/mistra-food-futures-policy-brief-livsmedelsstrategi-2.0.pdf>.

Scientific Articles 2023

Adamie, B.A., Owusu-Sekyere, E., Lindberg, M., Agenäs, S., Nyman, A-K., Hansson, H. (2023) Dairy cow longevity and farm economic performance: Evidence from Swedish dairy farms – ScienceDirect. Journal of Dairy Science. 9 September 2023. <https://doi.org/10.3168/jds.2023-23436>.

BEendz, A., Bäckstedt, F., Harring, N. & Persson, U.M. (2023). Why do people accept or reject climate policies targeting food consumption? Unpacking justifications in the public debate in online social forums. Food Policy. (accepted for publication)

Bengtsson, J. & Bommarco, R. (2023) Biodiversity friendly landscapes – A question with many solutions. In: Defining Agroecology – A Festschrift for Teja Tschamntke. Eds.: Dormann, C.F., Batáry, P., Grass, I., Klein, A.-M., Loos, J., Scherber, C., Ste.an-Dewenter, I. & Wanger, T.C. Tredition, Hamburg, pages 83–112. (Book chapter)

Bennett, E.M., Biggs, R., Peterson, G.D. and Gordon, L. J., (2021). Patchwork Earth: Navigating pathways to just, thriving, and sustainable futures. One Earth, 4(2), pp.172-176. <https://doi.org/10.1016/j.oneear.2021.01.004>.

- Biesbroek, S., Kok, F.J., Tufford, A.R., Bloem, M.W., Darmon, N., Drewnowski, A., Fan, S., Fanzo, J., Gordon, L.J., Hu, F.B. and Lähteenmäki, L. (2023). Toward healthy and sustainable diets for the 21st century: Importance of sociocultural and economic considerations. *Proceedings of the National Academy of Sciences*, 120(26), p.e2219272120. <https://doi.org/10.1073/pnas.2219272120>.
- Herzon, I., Mazac, R., Erkkola, M., Garnett, T., Hansson, H., Kaljonen, M., Kortetmäki, T., Lonkila, A., Jonell, M., Niva, M. and Pajari, A.M. (2023). A rebalanced discussion of the roles of livestock in society. *Nature food*, pp.1-2. <https://doi.org/10.1038/s43016-023-00866-y>.
- Johansson, E., Muneer, F., Prade, T. (2023) Plant Breeding to Mitigate Climate Change—Present Status and Opportunities with an Assessment of Winter Wheat Cultivation in Northern Europe as an Example. *Sustainability*. 2023; 15(16):12349. <https://doi.org/10.3390/su151612349>.
- Kalita, S., Nordberg, Å., Ericsson, N., Sandgren, M., Hansson P-A. Energy performance of biogas production from co-digestion of willow and manure – a systems analysis factoring in differences in willow varieties. *Biotechnology for Biofuels and Bioproducts*. (Accepted for publication)
- Karlsson, J. O., Robling, H., Cederberg, C., Spörndly, R., Lindberg, M., Martiin, C., Ardfors, E., Tidåker, P. (2023) What can we learn from the past? Tracking sustainability indicators for the Swedish dairy sector over 30 years, *Agricultural Systems*, Volume 212,103779. <https://doi.org/10.1016/j.agry.2023.103779>.
- Karlsson Potter, H., Yacout, D.M.M., Henryson, K. (2023) Climate Assessment of Vegetable Oil and Biodiesel from Camelina Grown as an Intermediate Crop in Cereal-Based Crop Rotations in Cold Climate Regions *Sustainability (Switzerland)*, 15(16), 12574. <https://doi.org/10.3390/su151612574>.
- Lagnelöv, O., Larsson, G., Larsolle, A., Hansson, P-A. (2023) Impact of lowered vehicle weight of electric autonomous tractors in a systems perspective, *Smart Agricultural Technology*, 4, 100156. <https://doi.org/10.1016/j.atech.2022.100156>.
- Mosnier, A., Schmidt-Traub, G., Obersteiner, M. et al. How can diverse national food and land-use priorities be reconciled with global sustainability targets? Lessons from the FABLE initiative. *Sustain Sci* 18, 335–345 (2023). <https://doi.org/10.1007/s11625-022-01227-7>.
- Mosnier, A et al, (2023). A decentralized approach to model national and global food and land use systems, *Environ. Res. Lett.* 18 045001. DOI: 10.1088/1748-9326/acc044.
- Nilsson, J., Khosht. Fatima F. El Khosht., Bergkvis, G., Öborn, I., Tidåker, P. (2023) Effect of short-term perennial leys on life cycle environmental performance of cropping systems: An assessment based on data from a long-term field experiment. *European Journal of Agronomy*, Vol. 149. <https://doi.org/10.1016/j.eja.2023.126888>.
- Robling, H., Abou Hatab, A., Säll, S., Hansson, H (2023) Measuring sustainability at farm level – A critical view on data and indicators – ScienceDirect. *Environmental and Sustainability Indicators*, Volume 18, 100258. <https://doi.org/10.1016/j.indic.2023.100258>.
- Röös, E., Wood, A., Säll, S., Abou Hatab, A., Ahlgren, S., Hallström, E., Tidåker, P. & Hansson, H. (2023). Diagnostic, regenerative or fossil-free – exploring stakeholder perceptions of Swedish food system sustainability. *Ecological Economics*. <https://doi.org/10.1016/j.ecolecon.2022.107623>.
- Sigtryggsson, C. Karlsson Potter, H. Passoth, V. Hansson, P-A (2023) From straw to salmon: a technical design and energy balance for production of yeast oil for fish feed from wheat straw. *Biotechnology for Biofuels and Bioproducts*, 16(1), 140. <https://doi.org/10.1186/s13068-023-02392-2>.

Thompson, B., Leduc, G., Manevska-Tasevska, G., Toma, L. & Hansson, H. (2023) Farmers' adoption of ecological practices: A systematic literature map. *Journal of Agricultural Economics*, 00, 1– 24. Available from: <https://doi.org/10.1111/1477-9552.12545>.

von Greyerz, K., Tidåker, P., Karlsson, J., Rööf, E. (2023). A large share of climate impacts of beef and dairy can be attributed to ecosystem services other than food production. *Journal of Environmental Management* 325:116400.

Zira, S., Salomon, E., Åkerfeldt, M., Rööf, E. (2023) Environmental consequences of pig production scenarios using biomass from rotational grass-clover leys as feed. *Environmental Technology & Innovation*, Volume 30, 103068. <https://doi.org/10.1016/j.eti.2023.103068>.

Media appearance 2023

Energieffektivisering inom lantbruket – bra för både miljön och lönsamheten - Jordbruksaktuellt (ja.se) (Bernesson. S. 22/12)

Drivkrafter och ekonomiska effekter för lantbrukares företagsutveckling - Lantbruksforskning, (Hansson. H. 21/11)

Nytt ramverk ska visa vägen vid dilemman, (papperstidn. 13/11) Land Lantbruk (Hansson. H)

<https://www.kottforetagen.se/visar-nyhet/vall-som-klimatsmart-foder-till-grisar.html> (#11)

"Vi behöver jobba tillsammans för kunskap om hållbarhet" - Jordbruksaktuellt (ja.se) (Hansson. H)

Elva forskare om synen på klimat- och miljövetenskap - DN.se (Gordon.J L)

Klimatsmart sjömat kan bidra till bättre kostvanor - | forskning.se (Crona. B)

Att gödsla med precision minskar utsläpp och ger ökad lönsamhet - Greppa (#9)

Hur går det för Jordbruksverkets uppdrag i livsmedelsstrategin? | Den svenska maten

Vi bedriver inte en jakt på idisslare | LLB (landlantbruk.se) (Gordon. J L, Rööf. E et.al)

Så bra är vegoprodukterna – för klimatet och miljön | SVT Nyheter (Karlsson Potter, H)

Trots priskrig – därför kan de höga priserna bli kvar 24 mars 2023 - Ekonomiekot Extra | Sveriges Radio (Hansson. H)

Närmsta åren avgörande enligt tyngsta klimatrapporten hittills 21 mars 2023 - Vetenskapsradion Klotet | Sveriges Radio (Gordon. J L)

<https://sverigesradio.se/artikel/saknas-kunskap-om-hur-prisokning-hos-lantbruket-slar-mot-konsumenter> (Hansson. H)

TV4.se (H. Hansson)

"Laddar för fossilfritt vårbruk 2023" (ATL 21 september 2023)

Forskaren om att eko minskar: "Olyckligt" - Plånboken | Sveriges Radio (Rööf. E)

Därför är mjölken så dyr – trots överskott - DN.SE (Hansson. H)

Interview: NowThis, Could eating more seafood be better for the planet? (Jonell. M)

<https://www.aftonbladet.se/debatt/a/LImmmR/sveriges-utslapp-maste-minska-nu-regeringen> (Gordon. L, Rööf. E et.al)

<https://www.landlantbruk.se/mat-ar-mycket-mer-an-naring> (Webbpubl. 31/5, Papperstidn. 6/6)

Ministerns köttvurm sågas: "Häpnadsväckande" - Syre (tidningensyre.se) (Gordon. L, Rööf. E)

Så många hektar åkermark har slutat brukas på 40 år - DN.SE (Hansson. H)

Klimatpåverkan från kalkning av jordbruksmark - Greppa (Karlsson Potter. H, Kätterer. T, Lang. R)

"Sätt blå mat på menyn i klimatförhandlingarna" - Aktuell Hållbarhet (aktuellhallbarhet.se)

Förnybar energi 3:2023 Vägen till ett grönare och energi-effektivare lantbruk (Bernesson. S)

Förnybar energi 3:2023 Energibesparing i jordbrukets fältarbeten (Bernesson. S)

Förnybar energi 1:2023 På Island kan koldioxid bli till berg (Bernesson. S)

Energieffektivisering inom lantbruket – bra för både miljön och lönsamheten - Jordbruksaktuellt (ja.se)

Efter salmonellautbrotten – nu diskuteras svensk matförsörjning - Nyheter (Ekot) | Sveriges Radio (Hansson H)

Klimatutmaningen Agenda Special, Agenda – Sön 3 dec 21:15 | SVT Play (Gordon. L J)

Maten år 2100 – hur vi kan äta utan att förstöra planeten | Del 3/6 21 december 2023 - Livet vid 2,5 grader | Sveriges Radio (Malin Jonell)

Bloggs 2023

Höglind. L, af Sandberg. A, Langendahl. P-A (2023) Food futures early career research network | Mistra Food Futures.

Sonesson. U (2023). Är vi inte tillräckligt intressanta? | Mistra Food Futures.

Hansson. P-A (2023). Är det rimligt med en politik som belönar för mark som inte producerar? | Mistra Food Futures.

Säll. S (2023). Det handlar inte om att äta bara kött eller gurka | Mistra Food Futures.

Hansson. H (2023) Att se till helheter och delar i komplexa system | Mistra Food Futures.

Alvstad. R, Jonell. M (2023) Planetvänliga mål? – Företagens hållbarhetsmål och om att hitta livsmedelssystemets hävstångspunkter | Mistra Food Futures.

Sonesson. U (2023) Hållbara matvanor måste ge glädje! Hållbara matvanor måste ge glädje! | Mistra Food Futures.

Persson. B, Norefjäll. F (2023). Värdet av dialog i systemomställning | Mistra Food Futures.

Lindahl. T (2023). Acceptans för politisk styrning med syfte att påverka matkonsumtion kan bero på så mycket | Mistra Food Futures.

MISTRA 
FOOD FUTURES








Stockholm Resilience Centre
Sustainability Science for Biosphere Stewardship



Stockholm
University

The overarching vision of the Mistra Food Futures programme is to create a science-based platform that contributes to enabling transformation of the Swedish food system into a system that is sustainable, resilient and delivers healthy diets. By taking a holistic perspective and addressing issues related to agriculture and food production, as well as to processing, retail and consumption Mistra Food Futures aims to play a key role in initiating an evidence-based transformation of the Swedish food system towards sustainability and resilience.

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Strategic Environmental Research