The Path to Regenerative Agriculture

Danish Agriculture & Food Council

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Introduction

Regenerative Agriculture is a path towards achieving even more sustainability in food production, with potential benefits for the environment, farmers and society as a whole.

Demand for and interest in regeneratively cultivated raw materials and products are rising — particularly among food companies and consumers.

However, the term is used widely, and there is no standard definition. But it may not make much sense to chase a narrow definition — as long as the supply chain is characterised by transparency and sustainability.

Instead, Regenerative Agriculture can be seen as an integrated farming system with a set of principles aimed at improving soil fertility, carbon sequestration and biodiversity both above and below the ground. In doing so, Regenerative Agriculture can create more resilient farming systems capable of withstanding climate change.

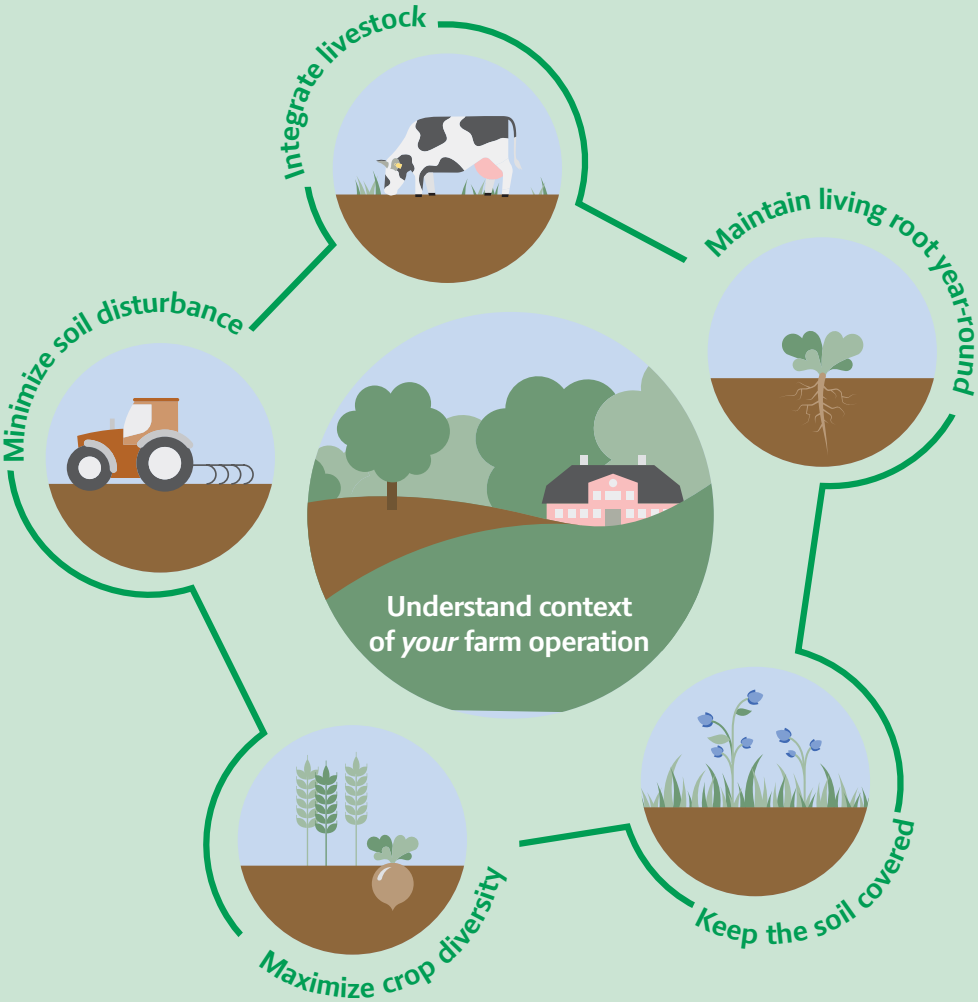
These principles can be implemented using various agricultural methods, adapted to local conditions. It might make sense to reduce tillage on one field, while the neighbouring field might benefit from more cover crops.

With this publication, the Danish Agriculture & Food Council focuses on Regenerative Agriculture and the guiding policy principles we believe should shape its continued development.

We hope that this publication will inspire and motivate more people to take part in the transition to Regenerative Agriculture, so that together we can support a development where sustainable food production and biodiversity go hand in hand.

Best regards,

Morten Boje Hviid
CEO, Danish Agriculture & Food Council


Integrate livestock
Maintain living root year-round
Minimize soil disturbance
Understand context
of *your* farm operation
Maximize crop diversity
Keep the soil covered

What is Regenerative Agriculture?

Regenerative Agriculture is an international concept that has gained ground in recent years, including in Denmark. It encompasses a set of principles aimed at improving soil fertility and carbon sequestration as well as biodiversity both above and below ground. Hence, it holds significant potential for nature, climate and the environment.

In recent years, Regenerative Agriculture has grown in popularity across the agricultural value chain, attracting interest from both large national and international food companies. While a few international certification schemes exist, there is no universally established definition of Regenerative Agriculture. As a result, Regenerative Agriculture today encompasses various methods of farming, and the specific farming techniques resulting in the best outcome will vary from region to region. Regenerative Agriculture is therefore highly dependent on local soil and climate conditions.

Despite this variability, several shared principles characterise Regenerative Agriculture, as outlined by multiple international sources, including SEGES Innovation in Denmark:

- Maintain living root year-round
- Minimise soil disturbance
- Keep the soil covered
- Maximise crop diversity
- Integrate livestock

Increased recycling of nutrients and reduced input of pesticides are an integral part of the principles.

Regenerative Agriculture is a complete farming system, not the cultivation of a single crop. Its principles are implemented through various farming practices tailored to local conditions and the specific needs of each farm. Practices aimed at fostering healthier soils include reduced tillage, the use of cover crops, compost and manure, diverse crop rotations, and crop diversity in individual fields.


19 %
of Denmark's agricultural land is cultivated with cover crops.
25 %
of Denmark's agricultural land is cultivated with reduced tillage.

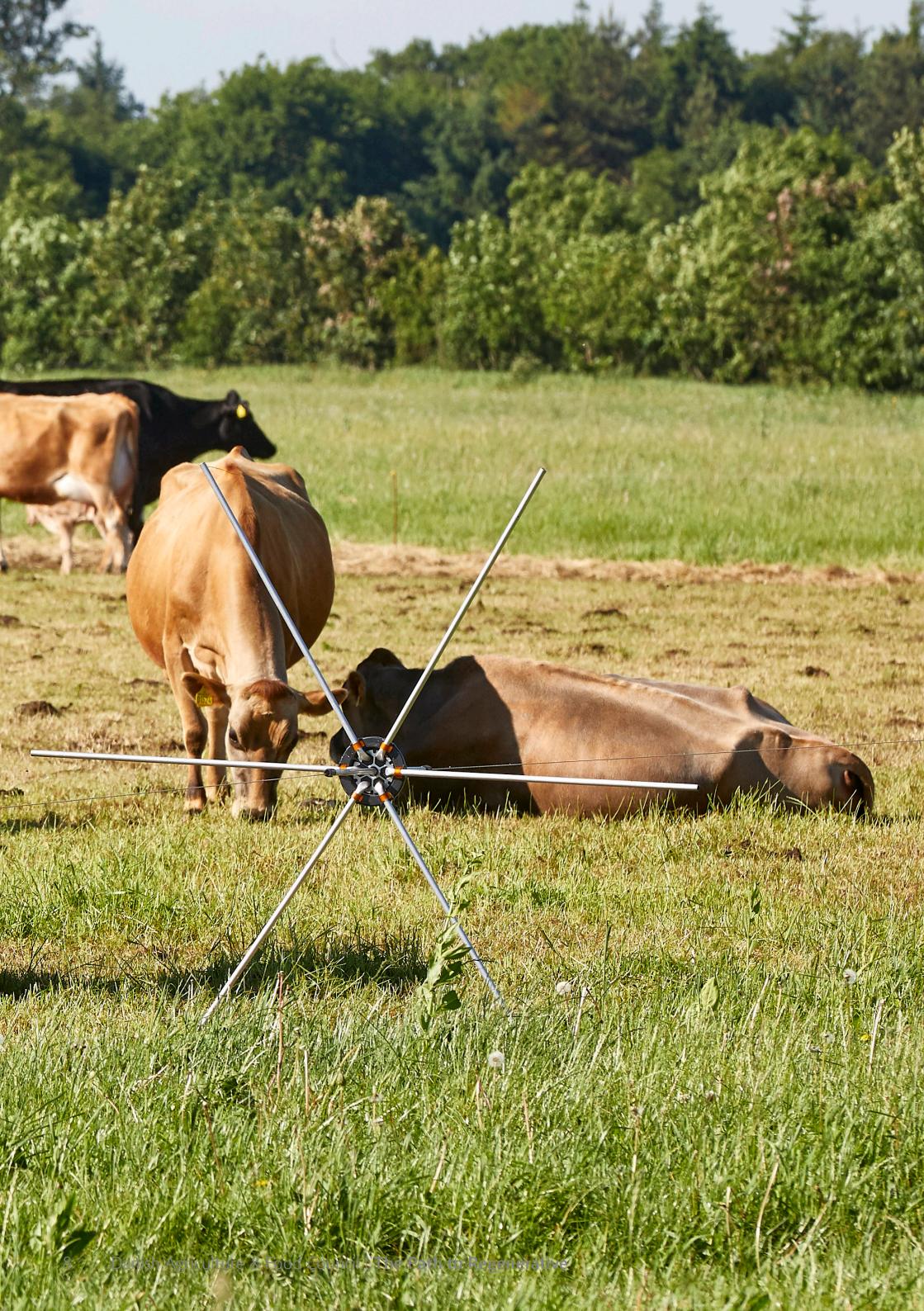
Adoption of regenerative farming practices

Denmark is well-positioned to develop Regenerative Agriculture, as many of its practices are already in use. To qualify for subsidies, the EU agricultural policy sets requirements for farmers to maintain good agricultural and environmental conditions (GAEC). These nine requirements include crop rotation to preserve soil fertility, maintaining soil cover and measures to prevent soil erosion.

Due to the lack of a universal definition of Regenerative Agriculture, there are currently no comprehensive statistics on the extent of its adoption in Denmark.

However, Statistics Denmark reported that in 2023, the area with reduced tillage amounted to 667,000 hectares, representing 25% of the total agricultural area and up from 11% in 2016. Reduced tillage was practiced on 20% of farms in 2023 and is most common on Zealand (the largest island in Denmark).

Since 1987, it has been a possibility to cultivate cover crops to meet the requirement for winter-green fields, and since 1999, a mandatory share of cover crops has been required on individual farms. The area with cover crops has been increasing and is expected to account for approximately 19% of Denmark's cultivated agricultural land in 2022. (Denmark´s National Inventory Report, 2024).



The potential of Regenerative Agriculture

Regenerative Agriculture can benefit the environment, biodiversity, and climate while building and improving soil health. The most prominent potentials often highlighted include:

1. Environmental and climate effects

A key priority for Danish agriculture is to reduce nutrient leaching from fields into streams and fjords.

In the regenerative system, cover crops are widely used to absorb excess nitrogen. Additionally, regenerative farming typically involves using lower amounts of nitrogen fertilizers, which further reduces nutrient leaching. Research also indicates that reduced soil tillage improves soil structure, which decreases surface runoff and erosion that can lead to phosphorus loss. These factors suggest that Regenerative Agriculture has the potential to create positive environmental effects, although the precise extent requires further studies.

Regenerative Agriculture is also often credited with the ability to sequester carbon in the soil and reduce greenhouse gas emissions. Healthier soils with higher organic content act as carbon stocks, contributing to climate stabilisation.

However, documenting the effects of regenerative farming is challenging, and no specific assessments of its climate and environmental impacts under Danish conditions exist. Therefore, this production method requires continued studies.

In a preliminary assessment, Aarhus University has concluded that farming practices resembling regenerative approaches can have positive climate effects through the gradual accumulation of carbon in the soil and biomass. However, carbon sequestration will diminish as soils become carbon-saturated, meaning the effect will decrease over time.

2. Improved Biodiversity

By promoting natural ecosystems and reducing pesticide use, Regenerative Agriculture improves what is known as functional biodiversity—i.e., the diversity of living organisms that benefit the farmer's production.

In a knowledge synthesis on regenerative organic farming, Aarhus University also found that reduced soil disturbance promotes soil fauna. Microorganisms and underground wildlife — earthworms, beetles, insects, etc. — contribute to healthier and more fertile soils.

Reduced use of insecticides improves living conditions for pollinators and beneficial insects that are crucial for agricultural production. Stable soil cover also improves habitats for a wide range of above-ground wildlife.

3. Improved soil fertility

Healthier soils can increase nutrient availability and improve water retention capacity. Reduced soil disturbance and greater crop diversity in rotations can increase organic materials and soil porosity. This makes fields more drought-resistant and reduces the need for irrigation. It also eases field work as the soil becomes more reliable for cultivation.

4. Financial potential

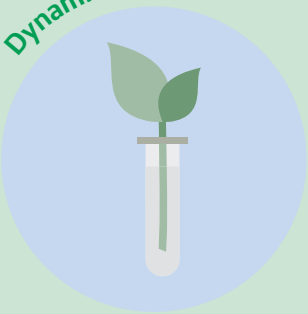
Typically, farmers experience lower production costs in regenerative farming due to reduced use of resources such as machinery, diesel, chemical fertilisers, pesticides, etc. However, during the transition to more regenerative practices, farmers often face operational losses. It has been argued that farmers could achieve more stable yields and more resilient soils in the long term. For Regenerative Agriculture to gain traction, it must be financially viable for farmers, and a market driven demand must exist for all crop types cultivated by using regenerative practices. However, a recent report from Tænketanken Frej (Danish think tank on agriculture) notes that there is not yet sufficient data to draw conclusions about the financial viability of Regenerative Agriculture.

Danish Agriculture & Food Council's Policy Principles

The Danish Agriculture & Food Council has developed six policy principles that highlight the considerations important for implementing regenerative principles, both from a business and a political perspective:

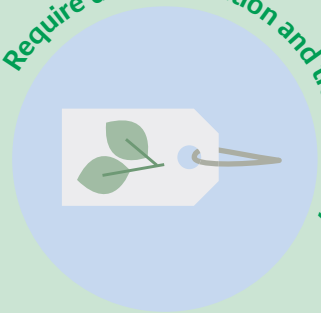
Knowledge-based

Dynamic



Value chain based

Require documentation and transparency



Market-driven

European perspective

Regenerative Agriculture must be:

Knowledge-based

More comprehensive and improved knowledge is needed about the effects of regenerative farming practices, particularly their overall impact under Danish conditions. The Danish Agriculture & Food Council emphasizes the need for scientifically grounded methods to measure and monitor long-term soil health, as well as the environmental and climate effects of the various practices to be included in regenerative farming in Denmark.

Regenerative Agriculture must be:

Dynamic

The journey to becoming a regenerative farm is a dynamic process. Therefore, the concept of Regenerative Agriculture needs to be further developed and adapted to a Danish context. Transitioning to a more regenerative farming system takes time and is a progressive journey for each farm. Education, advisory services, development, and testing of regenerative methods that account for local soil conditions are essential.

Regenerative Agriculture must be:

Value chain based

Engaging the entire value chain in discussions on Regenerative Agriculture is essential, along with fostering collaboration across different value chains. Since Regenerative Agriculture involves the entire farm and all its agricultural products, ensuring a sustainable economy for the entire food system, rather than focusing on individual products or stakeholders, is crucial.

Regenerative Agriculture must:

Require documentation and transparency

If products are to be marketed as regenerative or produced using regenerative methods, this must be documented and verified. This will require compliance with specific criteria for Regenerative Agriculture to market products as regenerative and to avoid greenwashing.

Regenerative Agriculture must be:

Market-driven

Regenerative Agriculture must create value for the entire value chain. A viable business model and economy must exist for farmers, food companies, and retailers alike. The farmer should be able to share the risk or have the prospect of a payment that reflects an expected lower yield. Regenerative Agriculture can thus support a market-driven development that incorporates all parts of the food system, while focusing on the demand side as well.

Regenerative Agriculture must have:

European perspective

Any standards or regulations related to Regenerative Agriculture should at least operate at the European level and align with the negotiations for a new Common Agricultural Policy (CAP) from 2028. The Danish Agriculture & Food Council is supportive of including regenerative farming practices in future targeted green subsidy programs.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