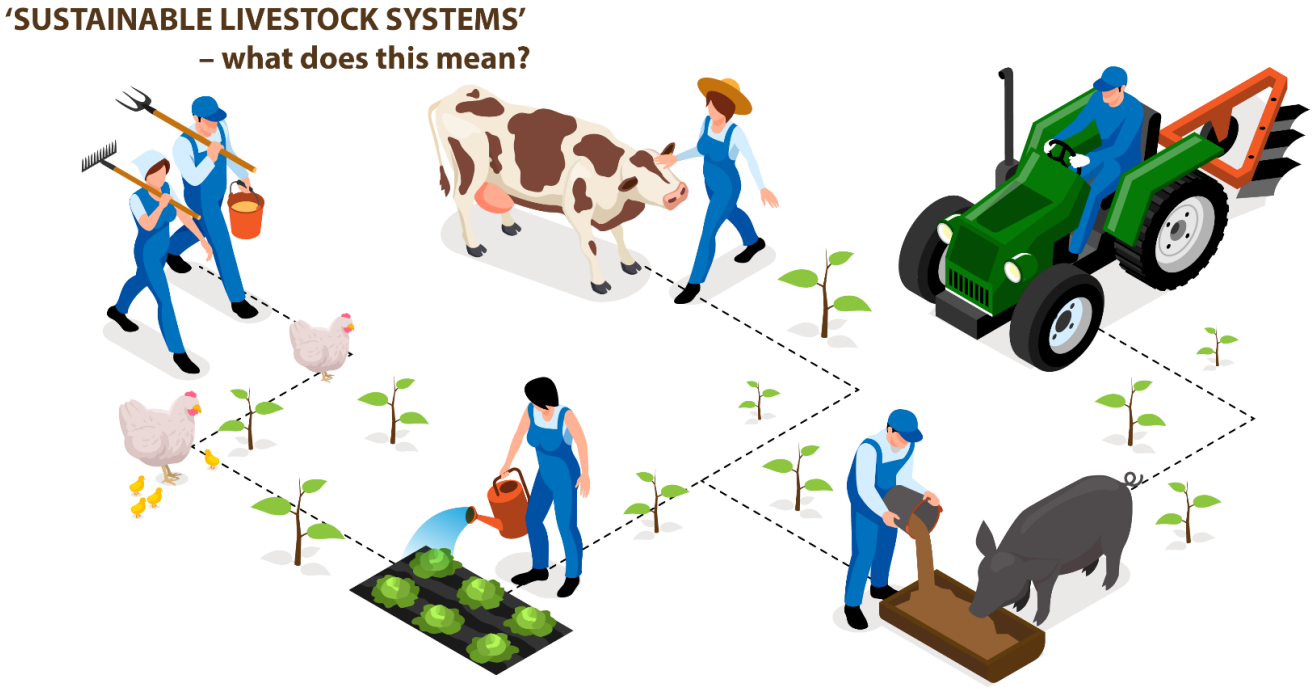
atf animal task force
A European Public-Private Partnership

EAAP European Federation of Animal Science

3rd one-day symposium
of the Animal Task Force & the EAAP Commission on Livestock Farming Systems:
Sustainable livestock farming – defining metrics and rationalising trade-offs?



SustAinimal – a multi actor knowledge centre for livestock in future Swedish food systems

Mårten Hetta[1], Sigrid Agenäs[1], Dirk-Jan de Koning[1], Helene Oscarsson[2], Per Peetz Nielsen[3] & Anna Wallenbeck[1]

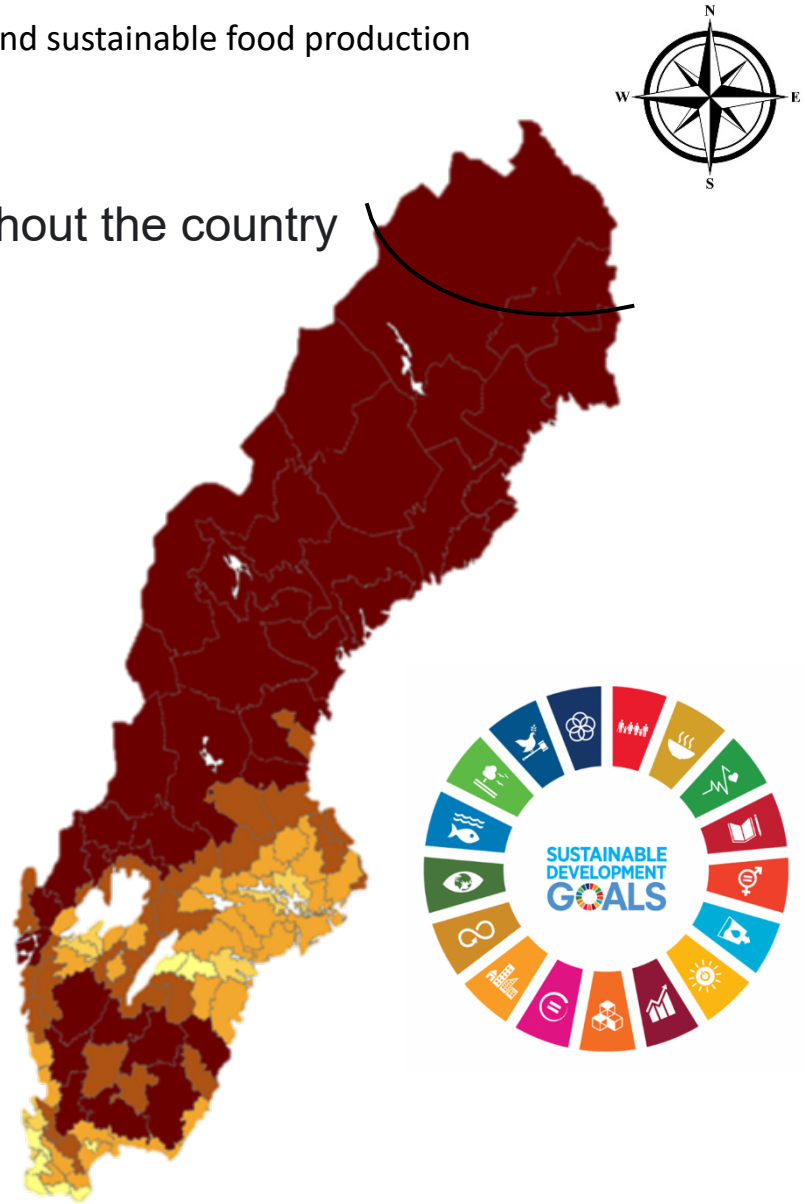
[1]Swedish University of Agricultural Sciences, [2]Vreta Kluster & [3]Research Institutes of Sweden

The National Food Strategy

Sweden has adapted a national food strategy (Government bill 2016/17:104), aiming at an increased and sustainable food production and ensure food security in crisis situations.

A competitive value chain, where total food production increases, throughout the country

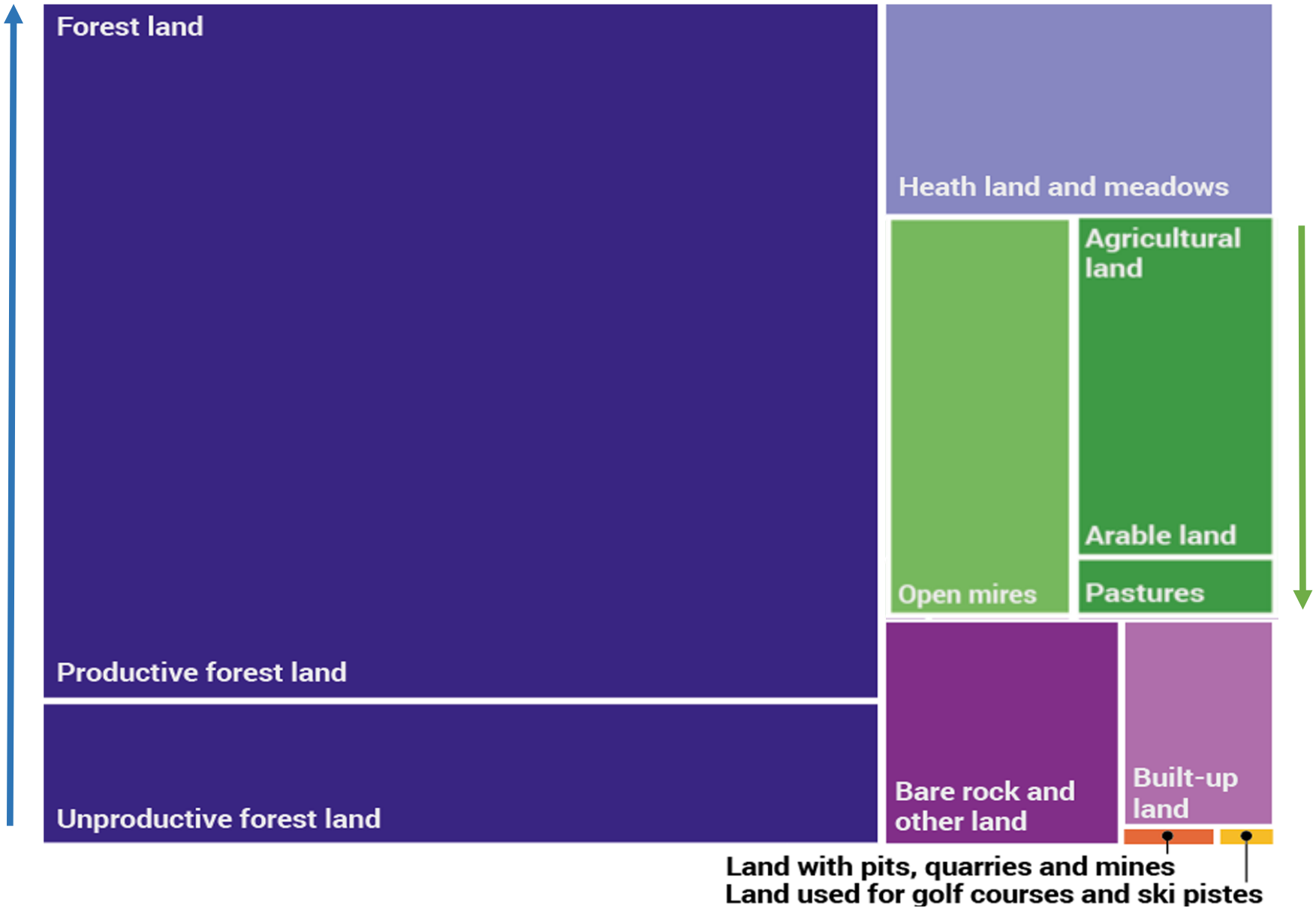
- Relevant environmental goals are reached
- Vulnerability in the food chain should be reduced
- The change shall be driven by demand from the consumers
- Increased degree of food self-sufficiency



Reumaux, R., Chopin, P., Bergkvist, G.,. Watson CA. & Öborn, I. 2023. Land Parcel Identification System (LPIS) …. *European Journal of Agronomy*, 149.

Land use in Sweden, 41 million hectares (ha)

Forest
28 million ha
(70 %)
Increasing



Farm land
2,9 million ha
(7%)
Decreasing

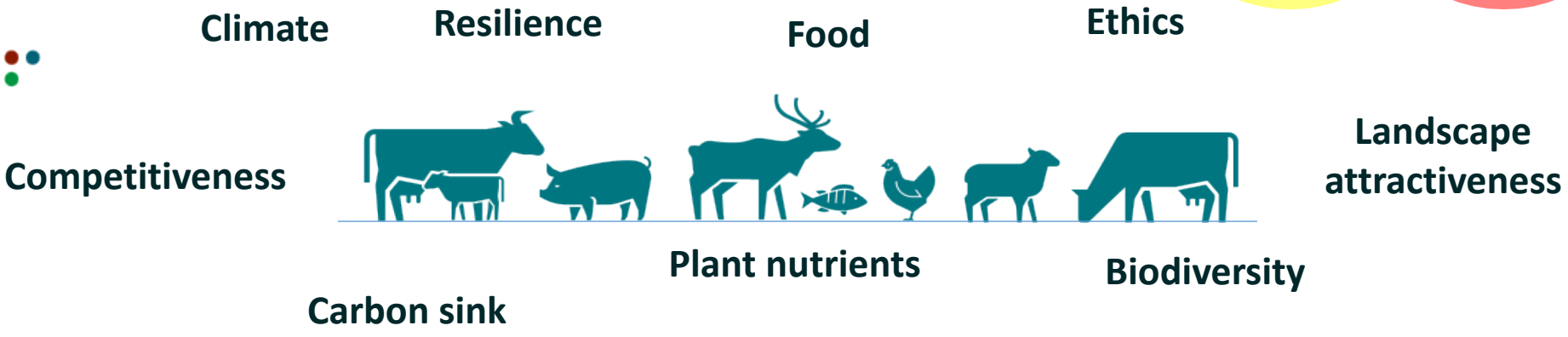
A knowledge center with focus on - the future role of livestock

SustAinimal

We are identifying and developing the future role of livestock production for increased sustainable and competitive food production in Sweden

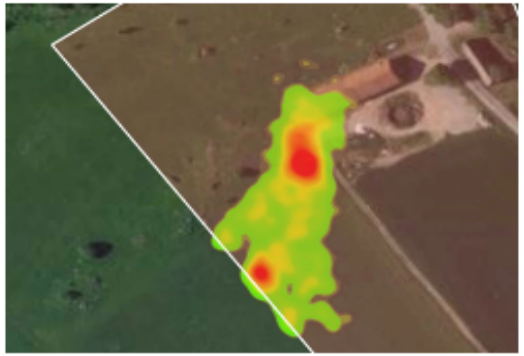
FORMAS

2021-2024



Focus areas with a joint leadership

Increased use of pastures



Digitilisation of the agricultural sector

A more sustainable and competitive animal production

The road to future sustainable animal production systems

Increased food production

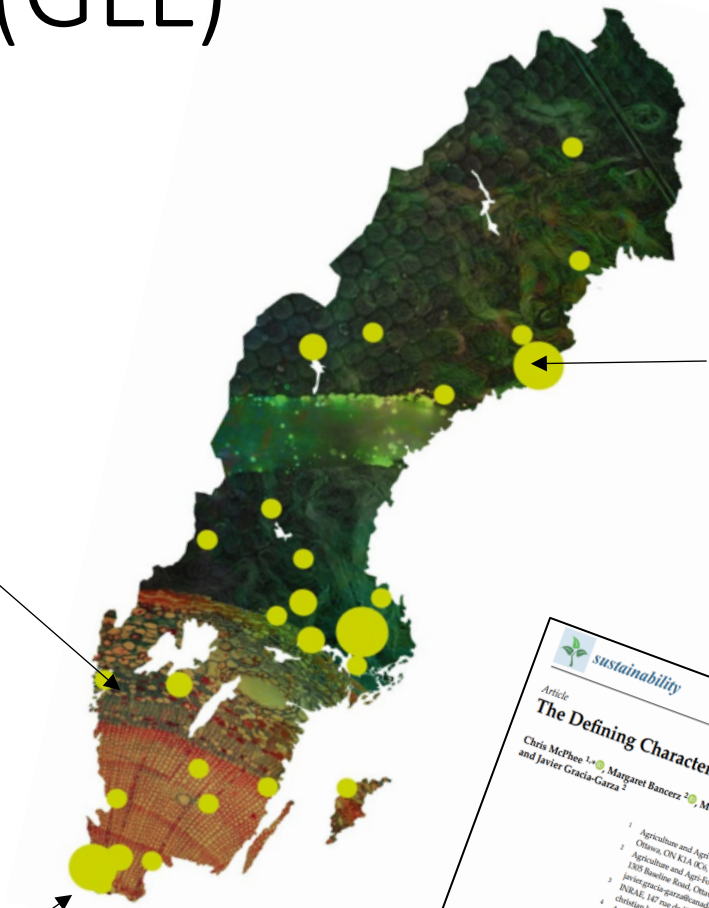
Coordination and support

Examples of on-going activities

Grazing Living Labs (GLL)

Node West

Node South



Node North

sustainability

Article

The Defining Characteristics of Agroecosystem Living Labs

Chris McPhee [1,*], Margaret Bancerz [2], Muriel Mambrini-Doudet [3], François Chrétien [4], Christian Huyghe [3] and Javier Gracia-Garza [2]

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Abstract: In response to environmental, economic, and social challenges, the living labs approach to innovation is receiving increasing attention within the agricultural sector. In this paper, we propose a set of defining characteristics for an emerging type of living lab intended to increase the sustainability and resilience of agriculture and agri-food systems: the "agroecosystem living lab". Drawing on first-hand knowledge of case studies of large initiatives from Canada and France and supported by eight other cases from the literature, we highlight the unique nature of agroecosystem living labs and their distinct challenges with respect to their aims, activities, participants, and context. In particular, these living labs are characterized by exceptionally high levels of scientific research; long innovation cycles with high uncertainty due to external factors; and the high number and diversity of stakeholders involved. Both procedurally and conceptually, we link to earlier efforts undertaken by researchers seeking to identify urban living labs and rural living labs as distinct, new types of living labs. By highlighting what makes agroecosystem living labs unique and their commonalities with other types of living labs, we hope to encourage their further study and help practitioners better understand their implementation and operational challenges and opportunities.

Keywords: living lab; agroecosystem; agriculture; innovation; characteristics; sustainability; typologies; placed-based

check for updates

Citation: McPhee, C.; Bancerz, M.; Mambrini-Doudet, M.; Chrétien, F.; Huyghe, C.; Gracia-Garza, J. The Defining Characteristics of Agroecosystem Living Labs. *Sustainability* **2021**, *13*, 1718. https://doi.org/10.3390/su13041718

Academic Editors: Dimitri Schuurman and Seppo Leminen

Grazing in temporary grasslands
(Leys in the crop rotation)

Case A

Grazing in semi-natural grasslands
(Part of the trees removed)

Case B

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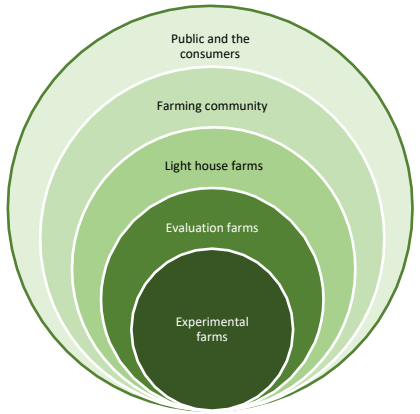
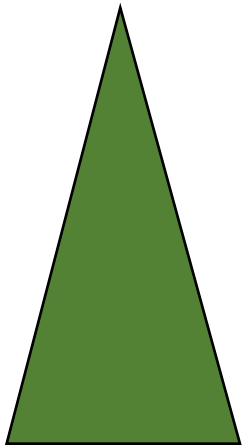
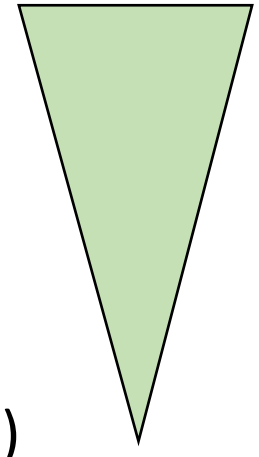
The layers of the grazing onion



High level of complexity, low means of control and large surface area



1. Public and the consumers / (Regional, Press and Enquiries)
2. Farming community (Members of cooperatives e.g. Norrmejerier)
3. Light house farms (Grazing excellence)
4. Evaluation farms (Producers who are open to changes)
5. Experimental farms (Controlled conditions with experimental designs)



Lower level of complexity, higher means of control and small surface area

Policy living lab – future role of livestock

SustAinimal

- Ambition to establish a national arena for a continuous and recurrent dialogue.
- Where multidisciplinary research and practical knowledge meets the institutional toolbox to define, test and evaluate possible policys

- Outputs:
  - New policies tested
  - Revised policy measures
  - New questions to investigate

SustAinimal

The Academy

Activities facilitating exchange between young researchers providing a context to gain a general understanding of the different sustainability aspects.

Virtual fencing technology– effects on cattle welfare and behaviour

In 2019 the Swedish Board of Agricultural (Jordbruksverket) decided that the technology was not allowed to be used in Sweden

So, before any legislation of the technique could be possible in Sweden the Swedish Board of Agricultural wants more research within this area!

PhD student, Lotten Wahlund –RISE/SLU

Illustrations: Nofence AS

Outcomes, so far (Examples)

Assessment of farmers' willingness to adopt silvopastoral systems. Opdenbosch & Hansson, (2023). Peer Review

Knowledge overview, obstacles and opportunities for increased natural grazing management from a farmer's perspective. SustAinimal Reports #1. Jamieson & Hessle (2021).

Virtual fences: a flexible tool for management of natural pastures. Wahlund & Hiron. SustAinimal Reports #2, (2023).

Effects of daytime or night-time grazing on animal performance, diurnal behaviour and enteric methane emissions from dairy cows at high latitudes. Lardy, Q. et al (2023). Peer Review

What to expect ?

SustAinimal will:

Foster and strengthen the relationships across partners to develop shared perspectives, new understandings, and collective commitment for action.

Highlight conflicts between different goals in relation to animal-based food production scenarios in different regions of Sweden.

Contribute to the development of the next generation of researchers in food production systems.

Make sure that best practice knowledge and innovation developed in SustAinimal is efficiently exchanged among the partners in the Centre.

Clarify the roles of animals in food systems in different regions of Sweden.

Do not hesitate to contact us!

www.sustainimal.se

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Linköpings Universitet
Högskolan Dalarna
Lantmännen
LRF
Hushållningssällskapet
norrmejerier
KLS
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RI.SE
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