



# EGF Symposium 2023

## The Future Role of Ley-Farming in Cropping Systems

### Synthesis

Andreas Lüscher and Matthias Suter

14.06.2023



# Problems

- High intensification, increase in inputs
- Decoupling of pure animal and stockless cash crop systems
  - => Soil health problems
  - => N losses, broken nutrient cycles
  - => Social costs
- Greenhouse gas emissions of ruminants
- Animal systems and grasslands under pressure



# Main findings

- Grasslands provide not only forage, but also other ecosystem services (ES) and multifunctionality  
=> We have to value these other ES
- Leys have forage benefits: herbage yield, N concentration, N yield, digestibility
- Leys have other ES benefits: nitrogen provision by inclusion of legumes, weed and disease depression, soil quality, soil microbiome, earthworms
- Crops following leys have similar yields with half of fertilizers applied (compared to crop following crop)



# Main findings

- Integrated crop-livestock: similar energy and protein yields as confinement with half of the costs; low N & C footprint
- Integrated crop-livestock: target at milk yield per ha instead of milk yield per cow; high-quality grassland-based feeding and low rates of concentrates
- Alternative grassland-use: e.g. biochar for C sequestration, grass protein for concentrates, packing materials, bedding materials, cut and carry fertiliser
- High proportion of leys in crop rotations needed to have important effects
- Legumes, legumes, legumes



# Research needs

- Genotype and species composition of mixtures
- Breeding for (i) climate stress, (ii) mixtures and (iii) high energy content
- Long-term and system-approach research
- Whole crop rotation and multisite experiments
- Quantify the social costs with improved methods (LCA to include also benefits)
- Eco-efficiency of alternative use (e.g. energy needs)



# Challenges

- Demonstrate the value of ley farming for mid-term and long-term benefits
- Acceptance of de-intensification of agricultural production to increase the provision of ecosystem services
- Show benefits of ley systems to farmers and advisors to foster implementation
- Develop practical, technical solutions to promote application
- Create new value chains for alternative grassland use
- Align governmental incentives for coherent support of ley systems



# Personal thoughts

- Why the ley topic in a country with a low share of leys?  
=> Eye opener, as it demonstrates how big changes could be in the future
- Happy that the delivery of specific technical and practical solutions were often addressed (and not only policy)
- Happy to see whole system and whole farm studies  
=> This is a big progress

**Leys are just marvellous!**

**But ...**



# .... Food for thoughts

- **The risky phase of the transition from the ley to the following crop was rarely addressed**
- **Huge differences in systems among countries**
  - => Different solutions needed
  - => What can I take home for my country?





# .... Food for thoughts

- **What is the control / comparison used – mental bias?**  
**Mental design of studies (not statistical)**
  - => Did the study select the worst situation (a very negative control) to easily show advantages?  
This answers only “better than the worst”
  - => Is there a positive control in the study?  
This would tell “better than the good”
  - => Is there even a better solution?  
This is “real progress” and needs  
**Thinking out of the box!**



# Stimulating science



**Agroscope**

---

**Synthesis | EGF Symposium 2023**  
A. Lüscher, M. Suter | © Agroscope





# Networking and project meetings







# Nice insight into Lithuanian situation







# Looking forward to The Netherlands





**Thanks a million for a very well organised symposium and your great hospitality**







22nd EGF Symposium  
Gintaras BRAZAUSKAS  
Lithuania

22nd EGF Symposium  
MIGRIS TOLEMIENE  
Lithuania

22nd EGF Symposium  
Ieva SILVANSKIENE  
Lithuania

22nd EGF Symposium  
Rita ARMONIENE  
Lithuania

22nd EGF Symposium  
Lina SAKINIENE  
Lithuania

22nd EGF Symposium  
Dr. Jurga TRIMKAITIENE  
Lithuania

22nd EGF Symposium  
Jolita KASULIENE  
Lithuania

22nd EGF SYMPOSIUM  
June 11-14, 2023 | Vilnius, Lithuania  
EGF  
2023





**Thank you for your attention**

**Andreas Lüscher**  
 Andreas.luescher@agroscope.admin.ch

**Agroscope** good food, healthy environment  
 www.agroscope.admin.ch

