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Going beyond deforestation- and conversion-free

Key agroecological concerns and (potential) best agroecological practices in soy.

Some examples from Argentina.

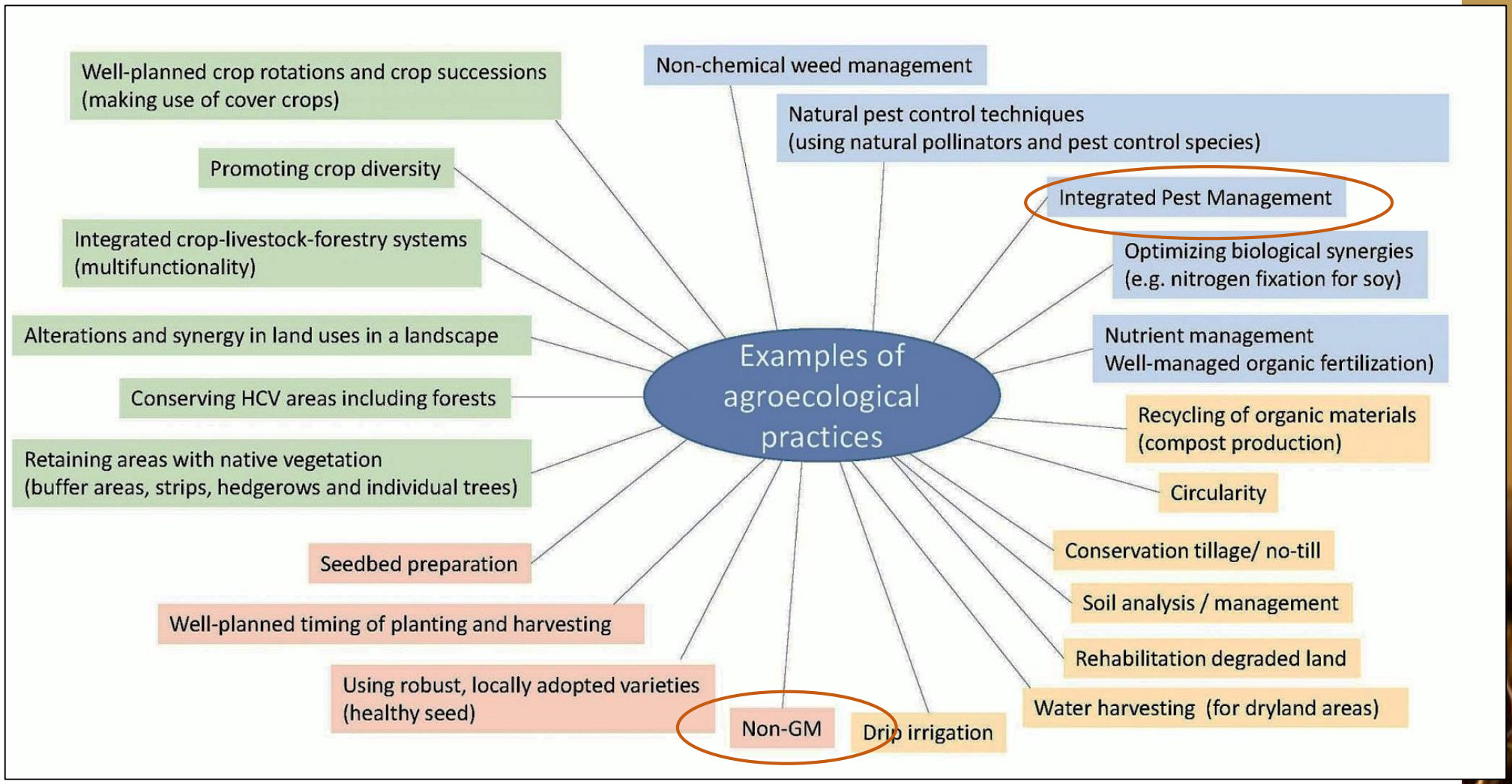
Agroecology: Key characteristics

- Goes beyond deforestation-free and conversion-free

Key characteristics:

- Reduce dependence on external inputs
- Enhance ecosystem services
- A focus on multi-functionality and total farm productivity
- Adapt practices to local context

Examples of agroecological practices



(Some) practices overlap with non-GMO, organic and also industrial agriculture, but not necessarily the same

Why promoting agroecology: the benefits

Unsustainable agriculture and food systems

Urgent need to make the transition towards sustainable food systems

- Loss of biodiversity and natural resources
- Contributor to GHG emissions: climate change
- Increasing recurrence of droughts, floods and new pests

Agroecological principles and practices have role to play.

Why? Because of benefits

- Improved biodiversity
- Reduced harm from agrochemicals
- Reduced vulnerability and improved socio-economic resilience
- Improved climate smart practices & increased resource efficiency

Benefit: Improved biodiversity

- A larger crop diversity on-farm
- Building natural species richness
- Higher natural genetic diversity
- Integration of land uses on landscape level
- Improving the ecosystems on and around the farm

E.g. Grasslands in rotation have a water regulating role

EXAMPLE

Promoting on-farm biodiversity: Integrated crop (including soy) - livestock-forestry systems, retaining native vegetation

Benefit: Reduced harm from agrochemicals (1)

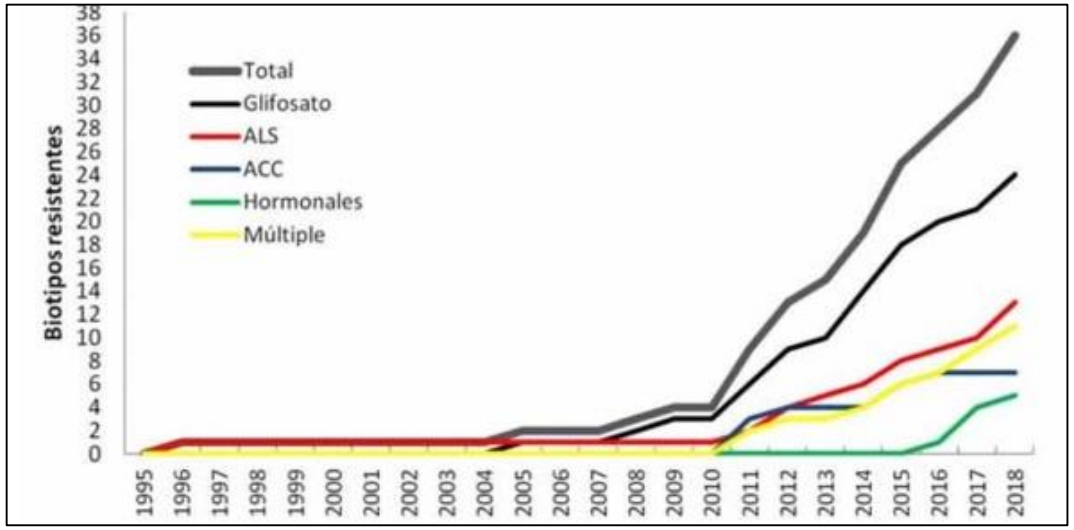
BaU: An increased use and/or change in mixtures agrochemicals to deal with:

- Herbicide resistance of weeds
- Controlling Asian Soybean Rust (or other diseases)

> Important to turn tide

Argentina: Mapped weeds - AAPRESID (2016/2017):

- 2013-2015: Mapped weeds (monitored on department level): 10 to 50% ↑
- Environmental impact due to additional application of herbicides as result of weed resistance: 30% ↑



Accumulated resistance in Argentina by mode of action (FEDEA, 2018)

Reduced harm from agrochemicals (2)

EXAMPLE

Integrated Pest Management (IPM), using pest control species, well-planned crop rotation

Development of robust cropping systems that *prevent* the development of outbreaks of pests, weeds and diseases

>> Less environmental and health damaging

E.g. Study Pampas Argentina: Between 20% and 50% of glyphosate still found in soil after 60 days of application > this is avoided.

Improve climate smart practices and resource efficiency

EXAMPLE

Less external inputs (fossil fuels, agrochemicals) results in less GHG emissions

- Many agroecological practices contribute to climate adaptation and mitigation (conversion-free, resource-efficiency, less input-intensive)

- Energy and GHG efficiency of production systems are linked to (reduced) input levels (e.g. agrochemicals) AND to yield levels: Both are important

- Improving the capacity of the soil > soil serves as carbon sink

  Example study Pampas, Argentina: Change from industrial towards agroecological system (including soy in the rotation) resulted in higher levels of soil organic matter > improved the ability of the soil to serve as carbon sink

Reduce vulnerability and improve socio-economic resilience

EXAMPLE

Diversification, crop rotation, nature based solutions to mitigate climate change such as restoration or corridors

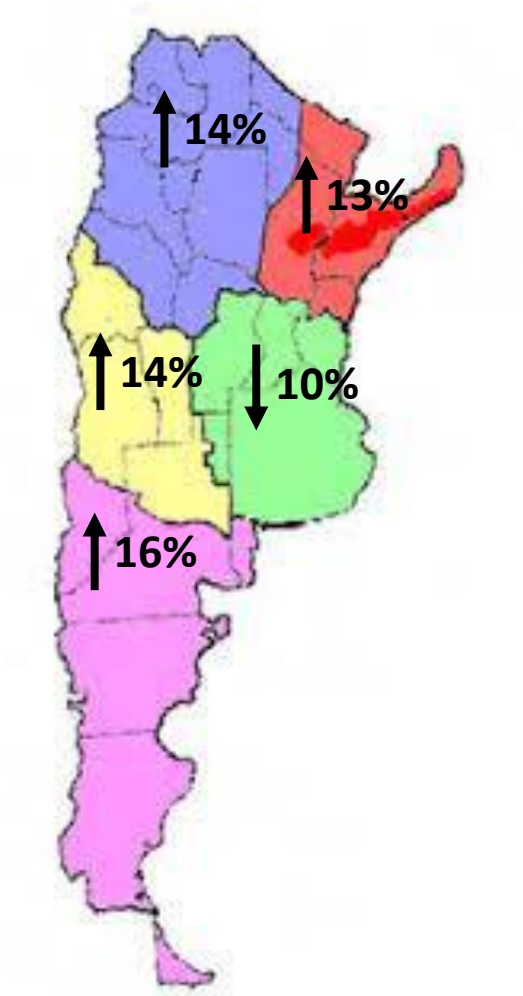
- Improving resilience of the farm and the landscape
  - Climate resilience (e.g. against floods, droughts)
  - Economic resilience because of diversification (no single crop failure)
- Key role in delivering long-term productivity
  - Preserving ecosystem services > maintenance soil quality (less erosion/ degraded lands)
- Improving the socio-economic resilience of farmers
  - Less dependent on (costly) external inputs
  - Diversification of income sources: less vulnerable for single market dynamics and price volatility

HOW DOES THIS WORK IN PRACTICE?

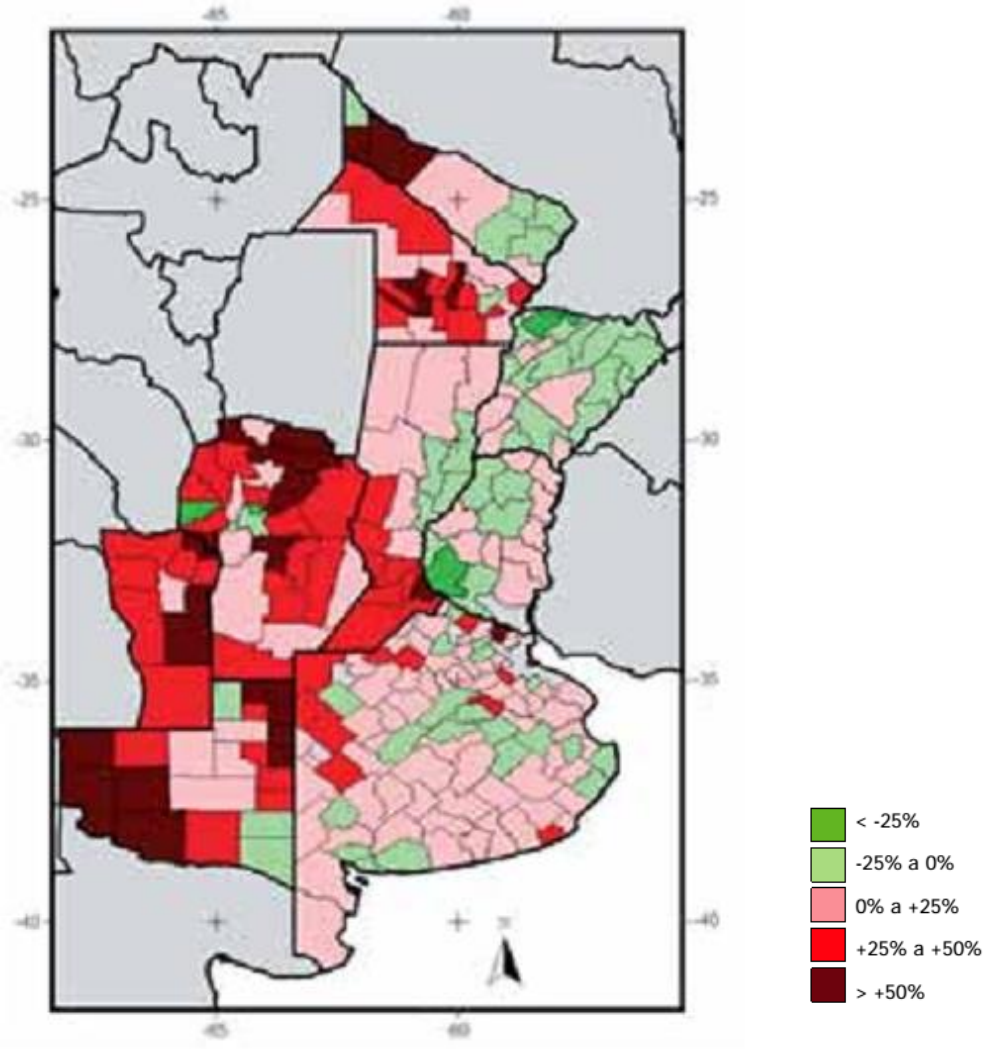
Some examples from Argentina.

Argentine Agriculturization

Shift from agro-livestock rotation to continued agriculture



Changes in bovine stock
1994 - 2007



Changes in rangelands 1988 - 2002

“biodiversity is between the cows' feet”

Forest Management Integrated with Livestock

VS.

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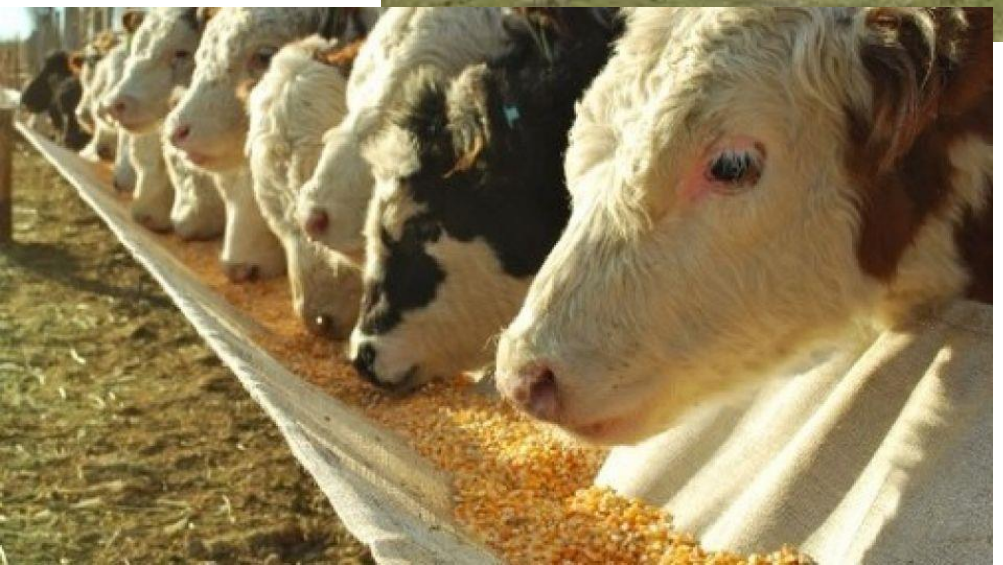
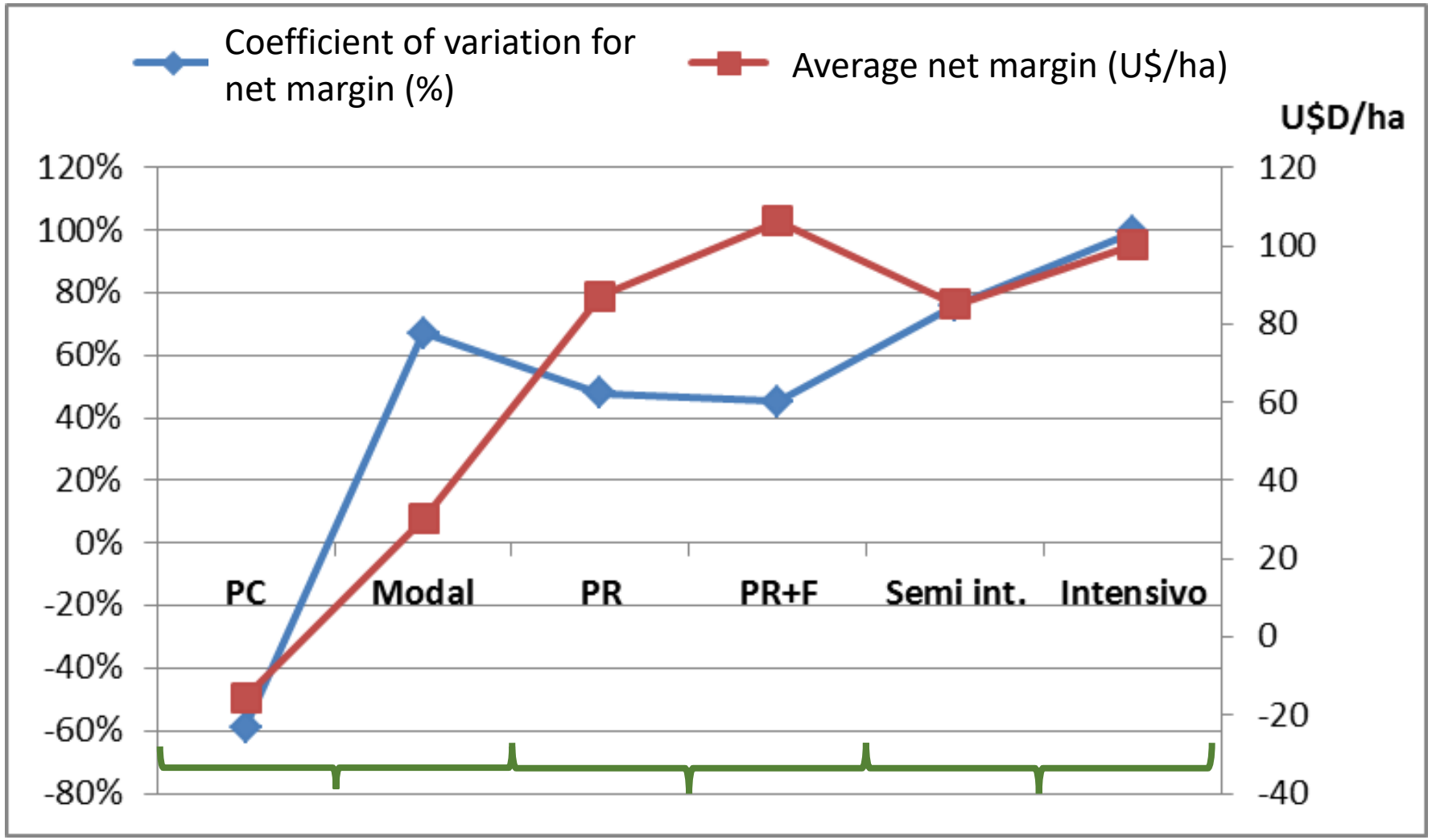
MBGI
MANEJO DE BOSQUE CON GANADERIA INTEGRADA



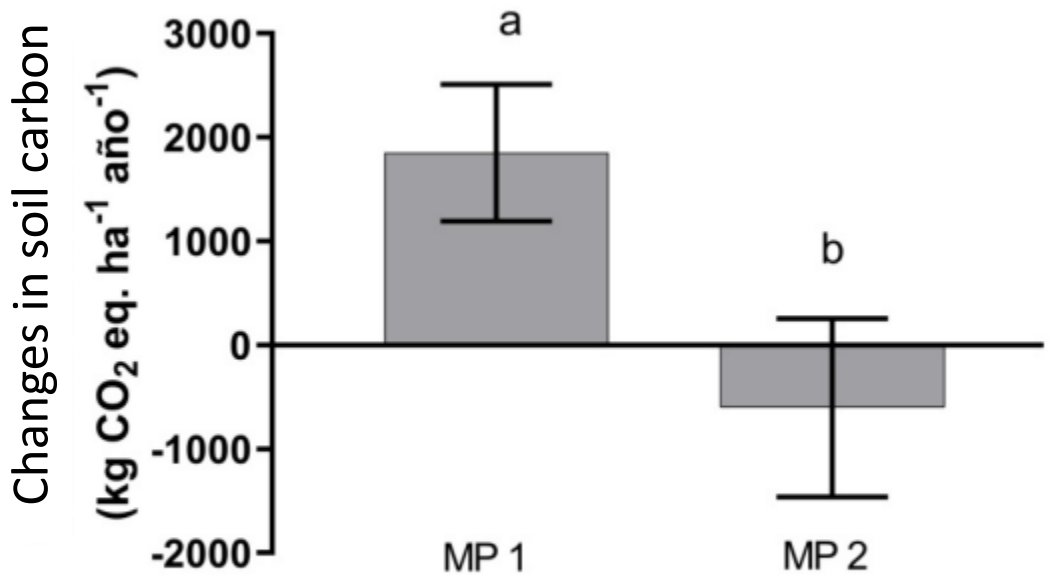
VS.

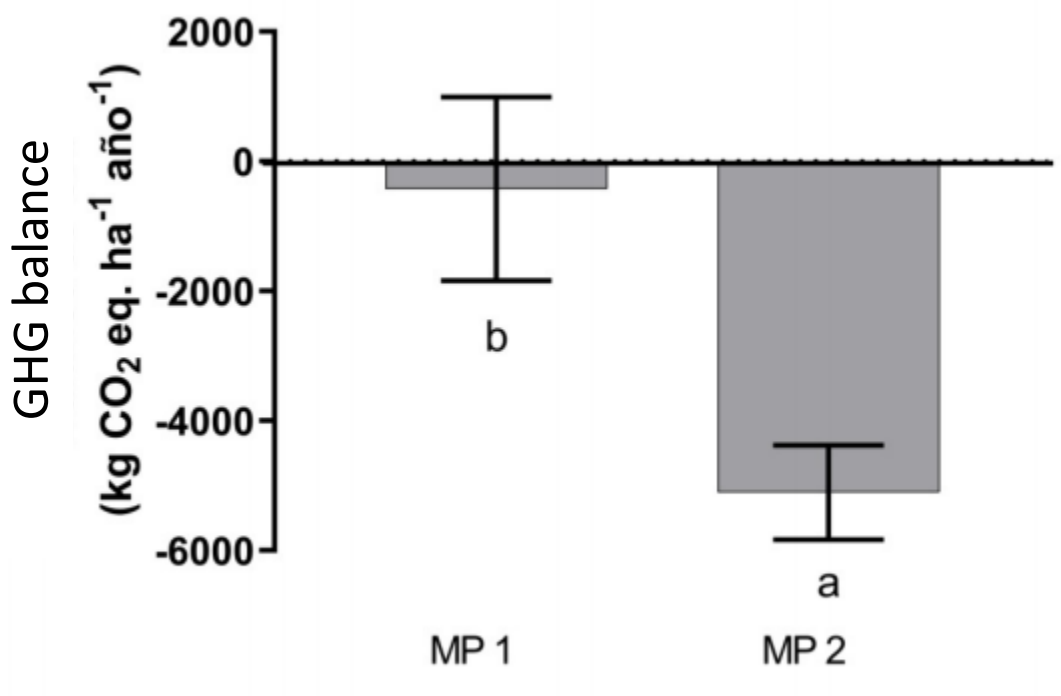
Economic results and it variability in different beef technologies in Argentine Pampas



Martinez Ortiz et al.,2017

Climate benefits for agroecological beef in Agentine Pampas





Jacobo et al., 2020

Agroecology on large scale: the Argenlanda case

Argenlanda Farm: 320 ha in southern Pampas.

Before:
67% agriculture
33% livestock

→

Now:
19% agriculture
81% livestock

- N and P withdraw ↓ 42% and 34%
- Fertilizers use: ↓ 60% urea, ↓ 4% DAP
- Insecticides: ↓ 80% to 100%
- Herbicides: ↓ 72% to 100%
- Fungicides: ↓ 40%

Incomes ↑ **4%**

Costs ↓ **17%**

Net Margin ↑ **57%**

Agroecology on large scale: Barrow Experimental Farm case

284 ha. Conventional wheat vs. two agroecological alternatives

Glyphosate, 24D, Dicamba

Yield **7%**

Protein content **34%**

Costs **30%**

Net Margin **8%**

Agroecology on large scale. Summary

- Agriculture & livestock integrated
- Crop diversity: intercropping (cereal + legumes, different varieties), multifunctional crops (market, feed & forage, services)
- Biodiversity (micro-corridors)
- Strong reduction on pesticides and fertilizers

Opportunity:

- Pesticides exclusion zones in peri-urban areas.
- Agroecological Municipalities Network – RENAMA

RENAMA

200 farmers
100,000 ha
40 municipalities

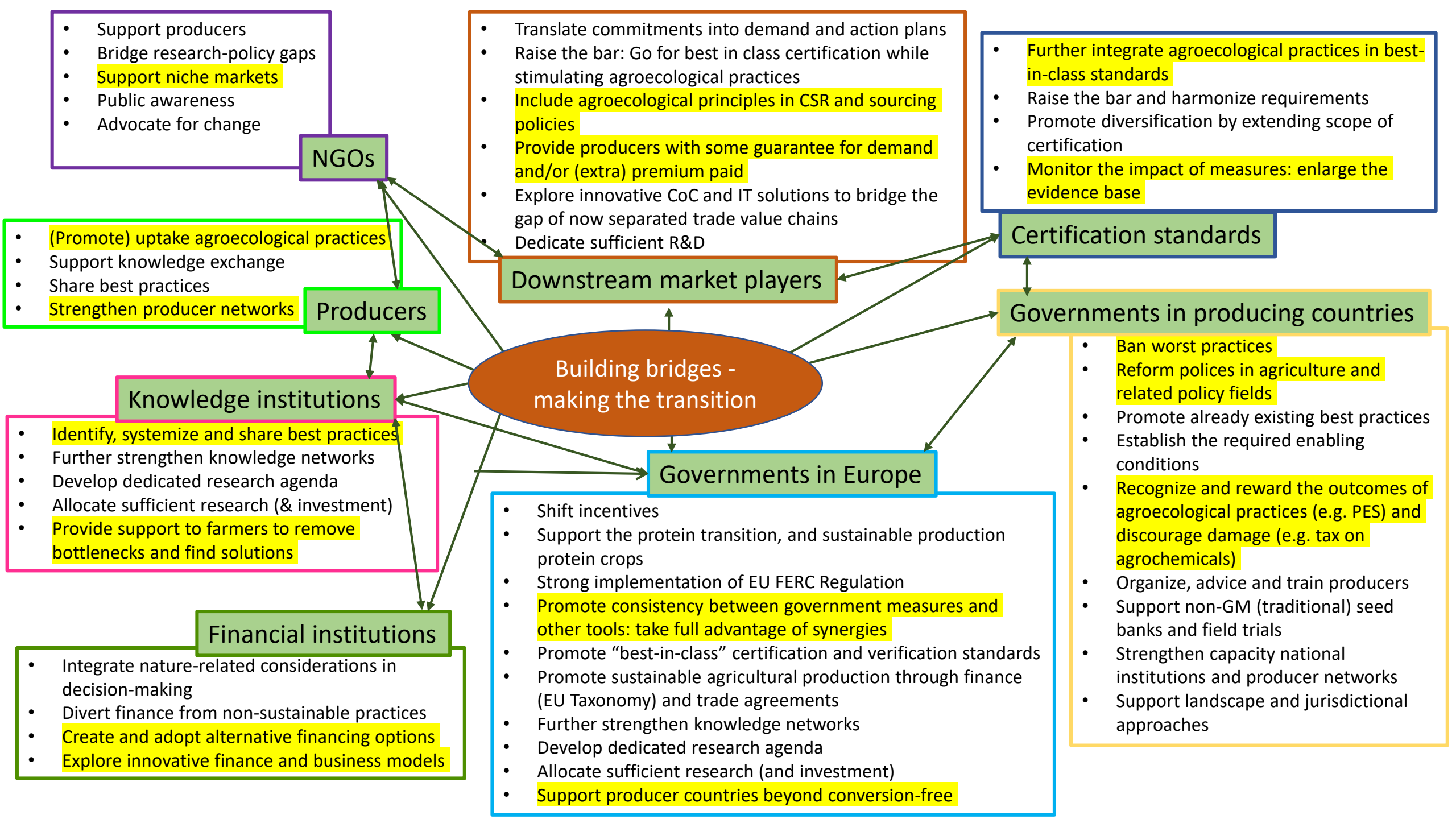
Barrier for soy: Lack of non – GM seeds

Any questions?

Ulises Martinez Ortiz & Jinke van Dam

Building bridges to make the transition towards a sustainable agricultural production system where agroecological practices are further mainstreamed

- Key: A transition takes place at all levels (farm, landscape, value chain, systemic level)
- Efforts and change from all actors needed


Building bridges - making the transition
NGOs
Support producers
Bridge research-policy gaps
Support niche markets
Public awareness
Advocate for change
Downstream market players
Translate commitments into demand and action plans
Raise the bar: Go for best in class certification while stimulating agroecological practices
Include agroecological principles in CSR and sourcing policies
Provide producers with some guarantee for demand and/or (extra) premium paid
Explore innovative CoC and IT solutions to bridge the gap of now separated trade value chains
Dedicate sufficient R&D
Certification standards
Further integrate agroecological practices in best-in-class standards
Raise the bar and harmonize requirements
Promote diversification by extending scope of certification
Monitor the impact of measures: enlarge the evidence base
Producers
(Promote) uptake agroecological practices
Support knowledge exchange
Share best practices
Strengthen producer networks
Governments in producing countries
Ban worst practices
Reform polices in agriculture and related policy fields
Promote already existing best practices
Establish the required enabling conditions
Recognize and reward the outcomes of agroecological practices (e.g. PES) and discourage damage (e.g. tax on agrochemicals)
Organize, advice and train producers
Support non-GM (traditional) seed banks and field trials
Strengthen capacity national institutions and producer networks
Support landscape and jurisdictional approaches
Knowledge institutions
Identify, systemize and share best practices
Further strengthen knowledge networks
Develop dedicated research agenda
Allocate sufficient research (& investment)
Provide support to farmers to remove bottlenecks and find solutions
Governments in Europe
Shift incentives
Support the protein transition, and sustainable production protein crops
Strong implementation of EU FERC Regulation
Promote consistency between government measures and other tools: take full advantage of synergies
Promote “best-in-class” certification and verification standards
Promote sustainable agricultural production through finance (EU Taxonomy) and trade agreements
Further strengthen knowledge networks
Develop dedicated research agenda
Allocate sufficient research (and investment)
Support producer countries beyond conversion-free
Financial institutions
Integrate nature-related considerations in decision-making
Divert finance from non-sustainable practices
Create and adopt alternative financing options
Explore innovative finance and business models