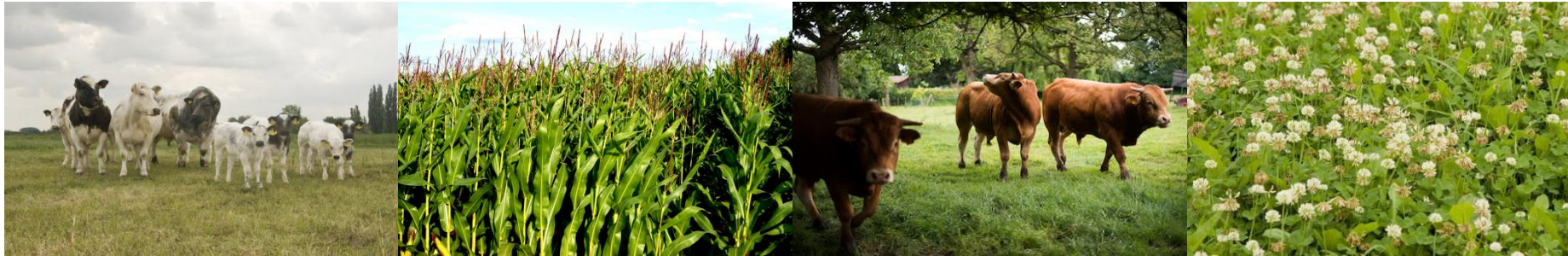


Putting Agroecological principles in practice: just ask farmers!



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City of Ghent
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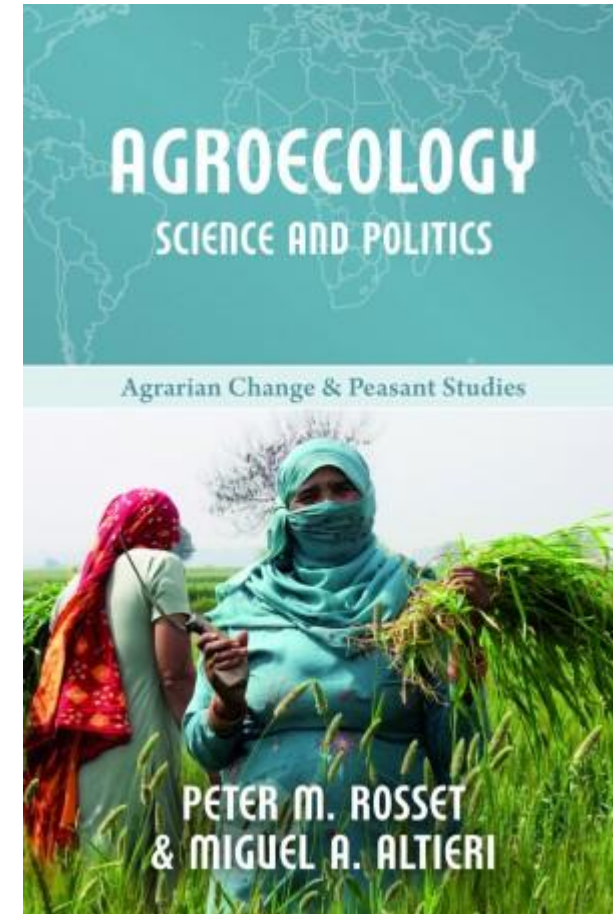
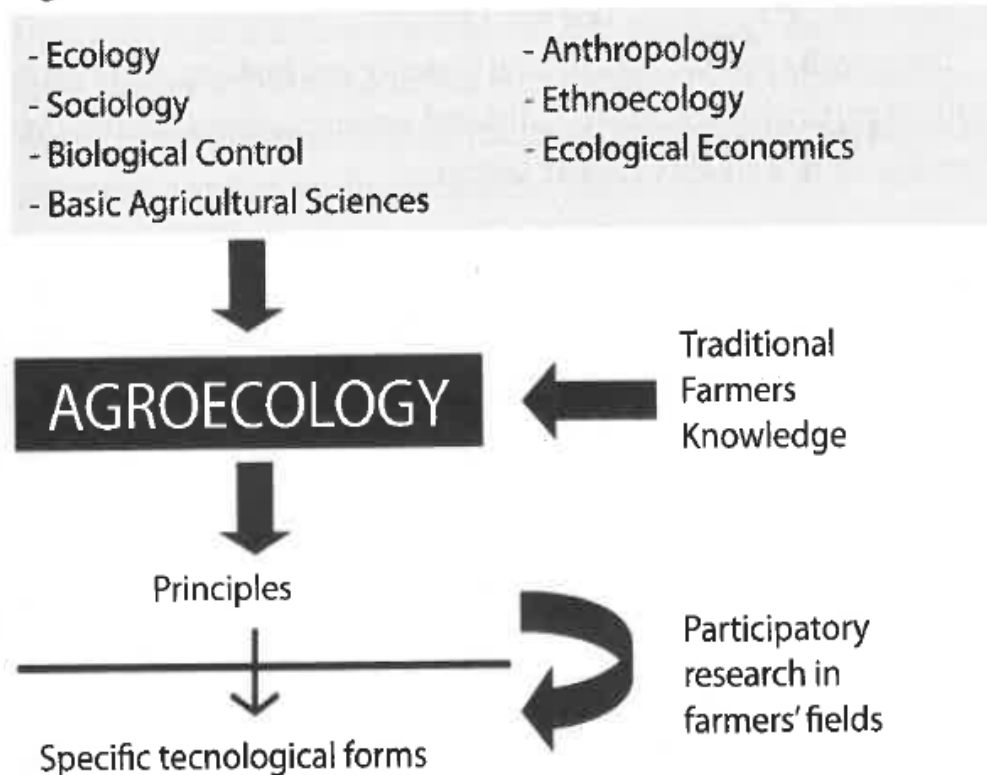


Case study:

- Beef farmers in Flandres under economic stress and facing societal criticism (Platteau et al. 2018)
- Long-time trends of intensification, specialization, market integration (van Zanden, 1990; Mazoyer & Roudart, 2006; Peeters, 2010)
- Agroecology as a possible sustainable, alternative development path for farmers?! (Bonaudo et al., 2014; Dumont et al., 2013; Wezel and Peeters, 2014)

“By promoting a dialogue of wisdoms and integrating elements of modern science and ethnoscience, a series of principles emerge, which when applied in a particular region take different technological forms depending on the socio-economic, cultural and environmental context” (Rosset et al., 2017)

Figure 1-1 The Principles of Agroecology



From principle to practice: starting from scratch?

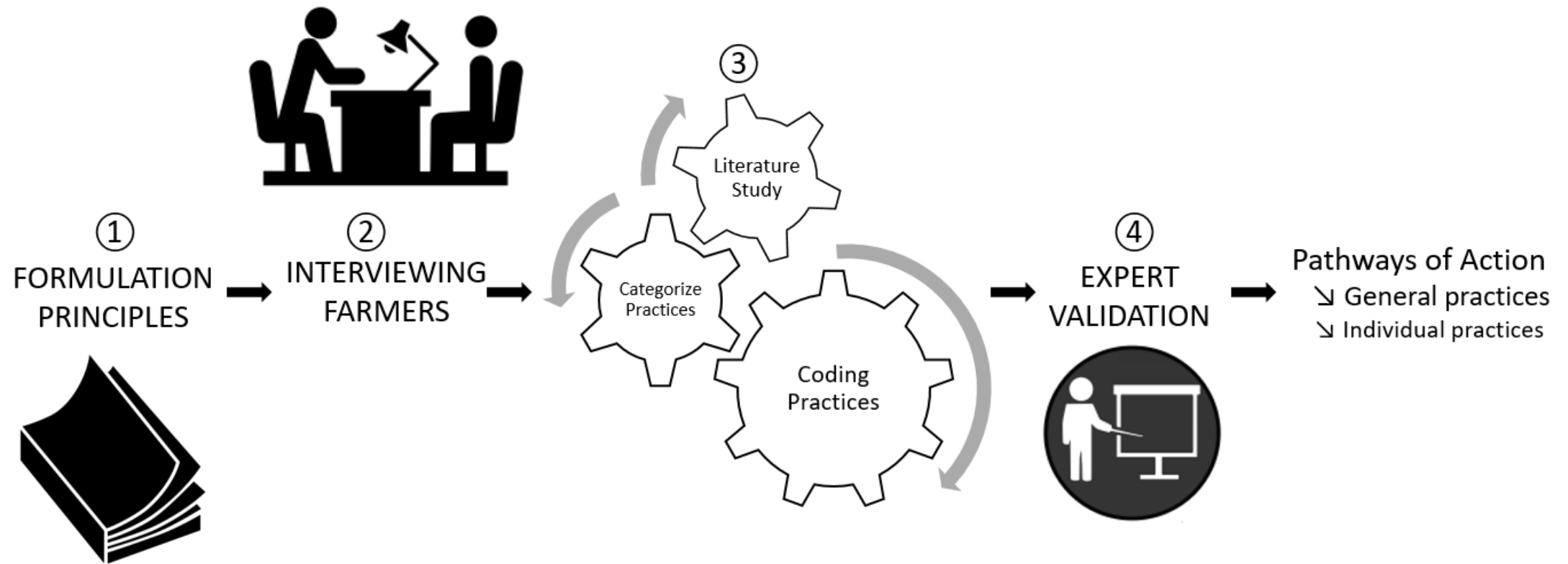
Exploratory analysis of farm survey data (Statistics Belgium, 2013)

⇒ Persistence of enormous diversity of cattle production systems in Flandres

⇒ Industrialization of beef farming incomplete in this region

⇒ Persistence and emergence of agroecological practices?!

An interpretative data gathering and grounded analytic approach





(1) Formulating a list of principles

1. Strengthen animal health in an integrated manner
2. Close nutrient cycles
3. Maintain a high diversity of species and genetic varieties in time and space
4. Preserve and use biodiversity
5. Reduce the use of external chemical inputs
6. Increase the resilience and adaptability of the farm-ecosystem against environmental shocks
7. Strive for autonomy from powerful input suppliers and purchasers
8. Pursue financial independence and control over economic and technical decisions
9. Exchange knowledge from a diversity of sources to solve problems
10. Maintain the social network on the countryside
11. Strengthen the bonds between producers and consumers
12. Create locally embedded food systems of production and consumption
13. Divide the burdens and the benefits of food production and consumption equitably

“HARD” AE

“SOFT” AE

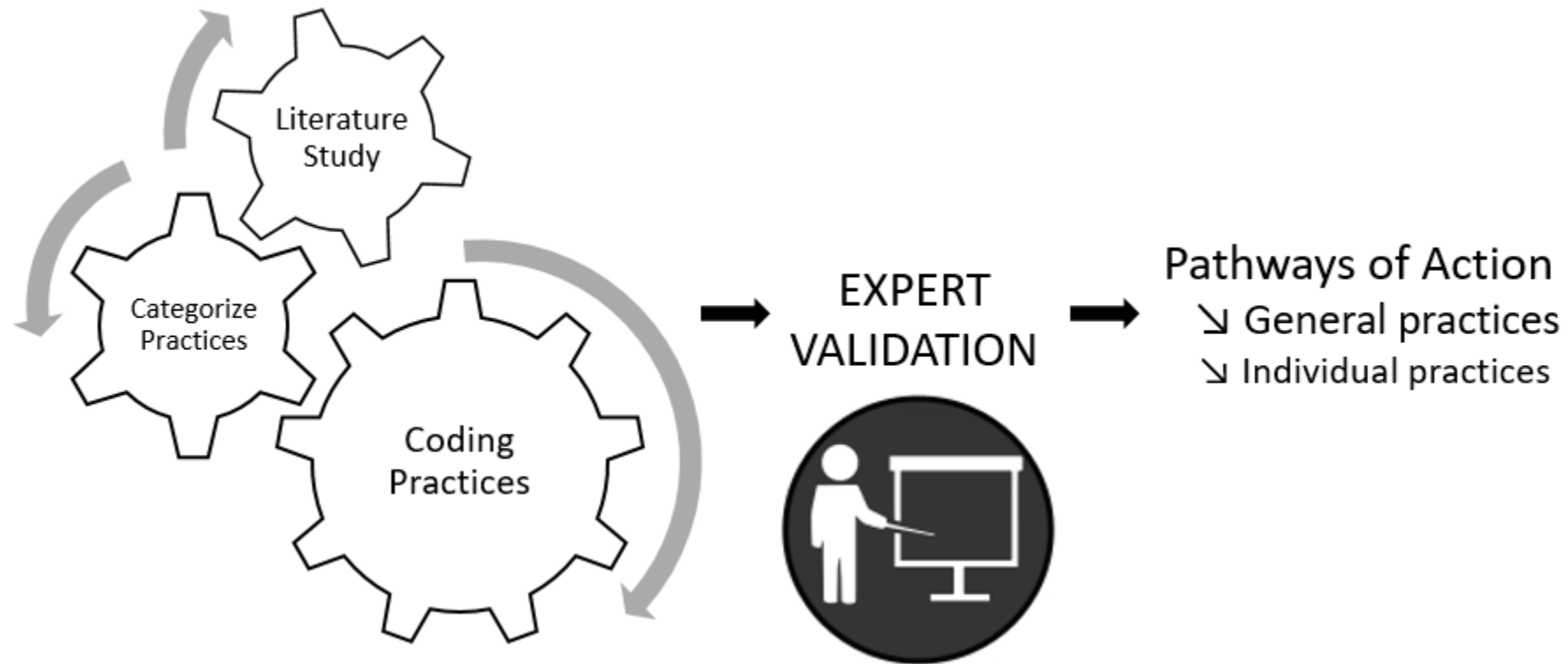
(2) Interviewing a diverse sample of farmers

Organic?	Direct Sale of Meat?	Diversified Agricultural Activities?	Tot #
Yes	Yes	Yes	10
		No	1
	No	Yes	1
		No	0
No	Yes	Yes	5
		No	3
	No	Yes	14
		No	3

- 37 semi-structured interviews (October 2017-June 2018)



Identifying practices in line with AE through content analysis

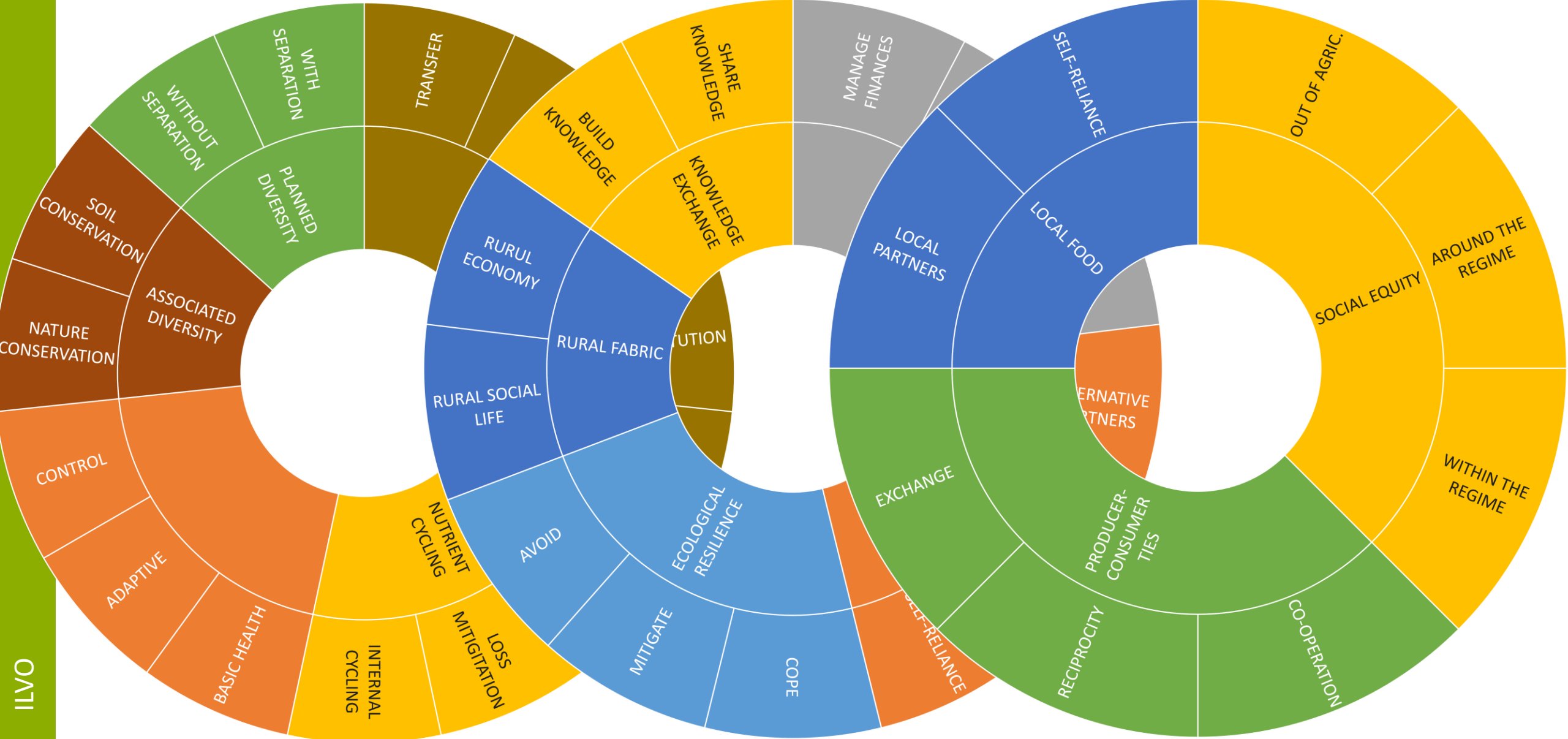


Results

- 690 individual practices of varying detail
- Clustered into 336 general practices linked each to one principle

○ P1		0
[-] ○ alternative treatments		3
○ alternatieve of gerichtere medicatie		2
○ natuurlijk droogzetten		1
○ speenafluiters		1
[-] ○ avoid accidents		4
○ bronstige koeien in stal aanbinden		1
○ huisvesting aangepast aan ras		1
○ ongelukken vermijden		2
○ stress dieren verminderen door huisv		1

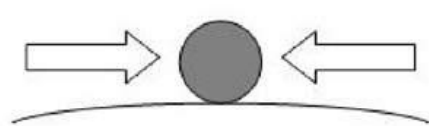
Identification of 36 Pathways of Action



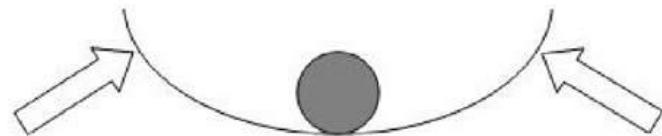
P1 Strengthen animal health in an integrated manner

- CONTROL POA: reduce exposure to pathogens by controlling environmental conditions;
- the ADAPTIVE POA: adapt animals to a relatively uncontrolled environment;
- BASIC HEALTH POA: take measure to maintain the general metabolic functioning of the animal

⇒ Ten Napel et al. 2006



Control model



Adaptation model

Pathways of Action	General Practices
CONTROL	Early weaning, separating and binding of animals, using preventive medication, using artificial insemination techniques, maintaining high hygienic standards for housing and feed, immediate treatment of diseases, shearing and washing, nematicides in grazing areas.
ADAPTIVE	Robust breeds and crossbreeds, long grazing season, extensive and diverse grazing, no preventive medication, herbal medicine and repellents, strategic rotation of mowing and grazing lands, rotating grazing species, social learning within herd to adapt to challenging environments, tolerate some disease, avoid C-sections.
BASIC HEALTH	Investing in good housing conditions, vaccination, avoiding nutritional deficiencies, access to colostrum, awareness for disease, strawing stables, selective breeding.

P6: Increase the resilience and adaptability of the farm-ecosystem against environmental shocks

- AVOID POA, design system in such a way that the chance of an environmental shock reaching the production system is reduced;
 - MITIGATE POA, increase buffers so that physical damages when an environmental shock does hit the farm, are reduced
 - COPE POA, increase capability to sustain temporary reductions in physical yields.
- ⇒ Risk Management Literature/Resilience

Pathways of Action	General Practices
AVOID	Closed herds, indoor livestock systems.
MITIGATE	Drainage, irrigation, dredge ditches, robust breeds and varieties, building up organic material in soil, reduce stocking densities in stable and grazing areas, monitor and compensate soil mineral deficiencies, maintain soil cover, less and timely tilling, wide crop rotations or strip cropping.
COPE	Diversify income sources (off-farm employment, multiple agricultural branches, pluri-activity), maintain a financial buffer or build physical feed and forage stocks, risk transfer (insurance, contract farming, seasonal subscriptions by customers).

P7: Strive for autonomy from powerful input suppliers and purchasers

- SELF-RELIANCE POA: distance yourself from markets in general, by organizing the mobilization of resources, the conversion of resources into end-products and the marketing and re-use of end-products yourself;
- CONTROL POA: (increase your ability to) flexibly redefine commercial relations you have with powerful commercial players;
- ALTERNATIVE PARTNERS POA: circumvent powerful commercial players by working with alternative partners.

=> Van der Ploeg (1990; 2010)

Pathways of Action	General Practices
SELF-RELIANCE	No or little pesticide and fertilizer use, own self-provisioning of roughage, concentrates and straw, own seed and planting material, own spraying and harvesting equipment, own processing, own transporting, processing, and/or distribution of products.
CONTROL	Put commercial partners in competition, avoid commercial debts, built in financial buffer, differentiate product, purchase in group, gather and exchange market information, avoid contracts in favor for free markets.
ALTERNATIVE PARTNERS	Alternative suppliers and sale channels, involvement within farmers' co-operatives for processing and/or distribution.

Main Findings (1)

- + Translation of principles into concrete practices: valuable to stakeholders!
- + Identification of POA's of more general relevance to other sectors and regions?!
- + Identification of practices contributing to multiple principles => more AEal?
 - e. g. growing of grass-clover and grain-legume mixtures, direct selling, farmer co-operatives, agroforestry, the use of solid manure and grazing of natural grasslands
- + Social-economic, social-cultural and social-cultural dimensions of AE start at the farm-level in practice
- ⇒ “Agroecology as a practice” is linked with social sciences and social movements
- Elicited Practices dependent on sampling and farmers' understanding
- Time-consuming analysis

Main Findings (2)

- Interlinking of Principles through practice
 - DIRECT: e. g. growing grain-legume mixture -> CHEMICAL INPUT USE, COMMERCIAL AUTONOMY, PLANNED & ASSOCIATED BIODIVERSITY
 - INDIRECT: robust breeds -> direct sale: link between ADAPTIVE management (P1) and SELF-RELIANCE (P7)
- ⇒ “hard” and “soft” agroecology are connected in practice!
- insights in adequacy of principles:
 - farm-/farmer-oriented list of principles has important shortcomings
 - integrate insights from landscape ecology and political economy to address and make use of the social and ecological embeddedness of farming systems!
 - Reductionist approach: looking at each principle separately instead of holistic assessment of agroecology


Perspectives

14th Principle: joint implementation of all principles at once

⇒ Case-by-case assessment of farmers' sets of practices

⇒ Scoring each case for each POA, based on practices mentioned during interview

⇒ Multivariate Analysis to identify interlinkages among POA's and Principles

A herd of cows of various breeds, including black, white, and spotted, are gathered in a dirt field. In the background, there is a wooden fence and a line of trees under a bright blue sky with scattered white clouds. The text "Thank for your Attention!" is centered over the image.

Thank for your Attention!

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