Welfare barriers and levers for improvement in organic and low-input outdoor pig and poultry production systems

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 816172

THE MULTI-ACTOR PPILOW EUROPEAN PROJECT (2019-2024): A PARTICIPATIVE APPROACH TO CO-BUILD INNOVATIONS FOR WELFARE IMPROVEMENT IN ORGANIC AND OUTDOOR PIG AND POULTRY FARMS

Coordination: INRAE
la science pour la vie, l'humain, la terre

The PPILOW project aims to co-construct innovations to improve Poultry and Pig Welfare in Low-input outdoor and Organic farming systems through a multi-actor approach

Why is it important to consider welfare in organic and low-input outdoor farming systems?

- High quality of the rearing system and of the products
- Diversity of practices throughout Europe
- Still a need to improve animal welfare and limit mortality, in relation to outdoor access challenging the animals, ethical issues, the wish of practitioners and societal expectations

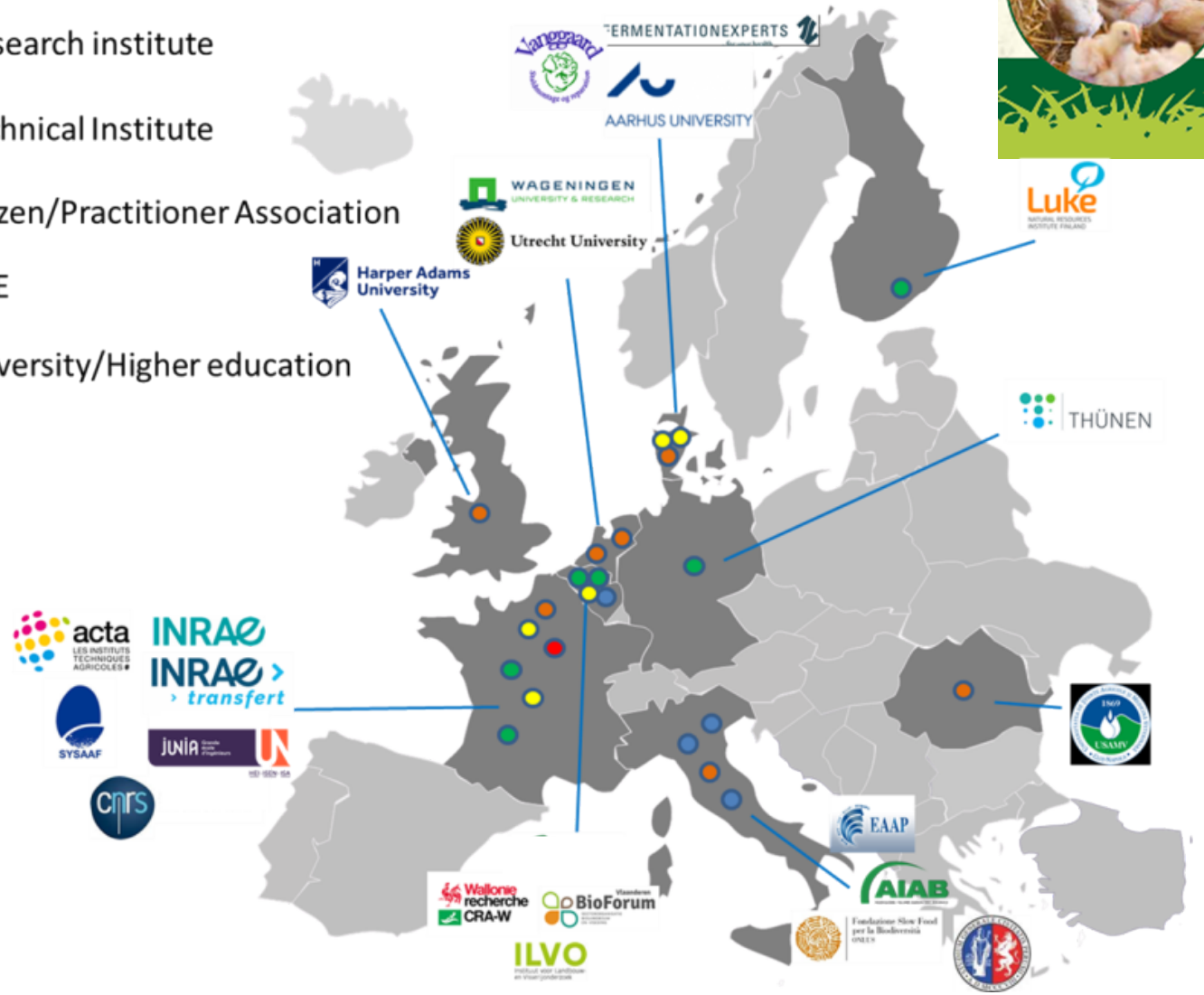
Evaluation of the welfare-improving practices by taking into account environmental, economic and social impacts *including human well-being (practitioners, consumers, citizens)*

One Welfare Concept (Garcia Pinillos et al., 2016)

PPILOW partners and collaborators

PPILOW
Poultry and Pig Low-input and Organic production systems' Welfare

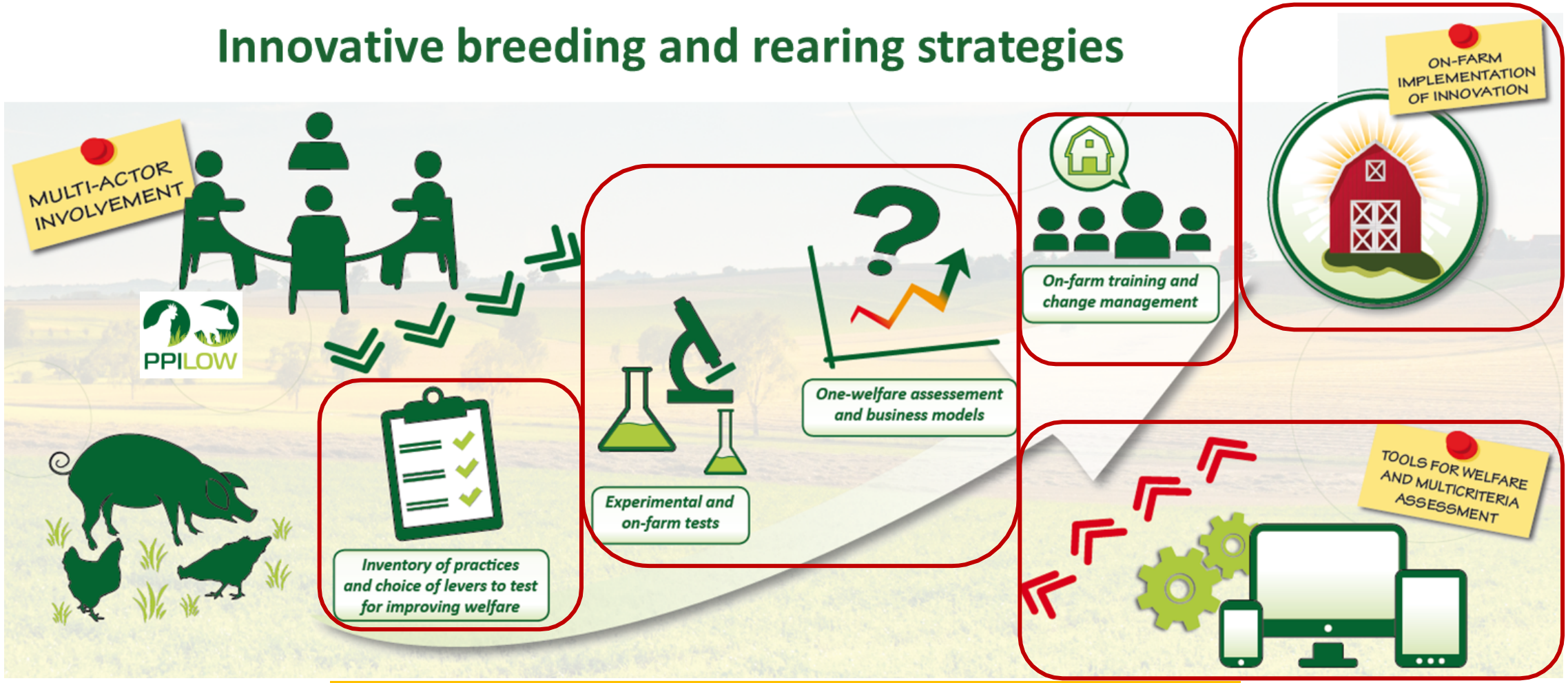
- Research institute
- Technical Institute
- Citizen/Practitioner Association
- SME
- University/Higher education



22 PPILOW Partners in 9 countries

9 National Practitioner Groups (NPG): 4 dedicated to pigs and 5 to poultry

www.ppilow.eu



Favouring positive behaviours, improving health and robustness

Avoiding piglet castration, beak trimming, the elimination of layer male chicks

The overall aim of **WP1** was to understand

which **ethical, socio-economic and technical factors (barriers, levers)**

are essential to improve poultry and pigs welfare

in organic and low-input outdoor production systems

Luke
NATURAL RESOURCES INSTITUTE FINLAND

- **WP 1.1: Inventory of animal welfare practices in organic and low-input outdoor production systems**
- **WP 1.2: Stakeholder expectations towards organic and low-input farming**
- **WP 1.3: Adequacy of production practices to interest groups and citizens' expectations**
- **WP 1.4: Economic viability and value-adding potential of strategies improving animal welfare**

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PPILOW WP1.1

An inventory of animal welfare practices in organic and low-input outdoor livestock production systems

Data from literature and research projects

An inventory of animal welfare practices in organic and low-input outdoor livestock production systems

Data from literature

complemented with interviews of key informants

Objectives of the interviews:

- To identify gaps and opportunities for animal welfare
- To obtain depth information on frameworks for solving the animal welfare challenges

Interviews with 11 key informants working within the supply chain
(in Finland, France, Italy, UK)

PPILOW WP1.1 What are the issues in poultry production ?

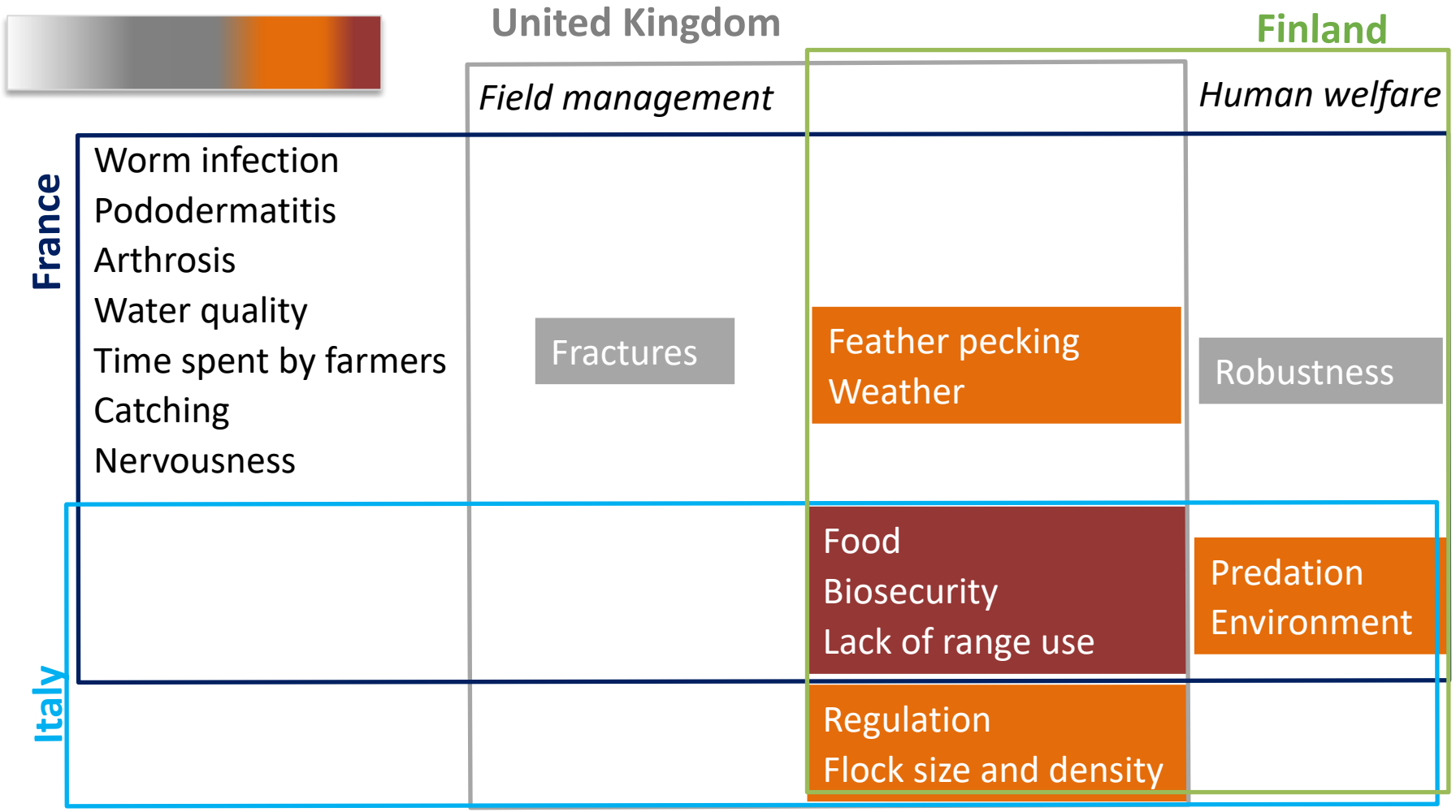
Data from publications and research projects

Health	Animal behaviour	Management practices
Parasitism	Feather pecking	Risk of predation
Digestive diseases		Weather risks
Arthrosis, Pododermatitis	Fearfulness	Human welfare/well-being
Fractures, Osteoporosis	Low use of the outdoor space	Need to increase time spent with the animals by farmers
Mortality	Lack of expression of natural behaviour	Depopulation & loading procedure
Lack of alternatives to antibiotics		Range management
Poor water quality		
Lack of robustness		
Unsuitability of biosecurity rules		

Bonnefous et al. 2022, Frontiers Vet. Sci.

PPILOW WP1.1 What are the main issues in poultry production ?

From the interviews



PPILOW WP1.1 What are the levers in poultry production ?

Food
Biosecurity
Lack of range use

Type of item to be altered	Rationale of solutions: examples in broiler chickens
Food: Using new raw materials	Insects, resources found on the range
Food: Producing one's own diet	Feed composition, Feed manufacture
Biosecurity: Need for new treatments	Probiotics, phytotherapy
Biosecurity: Regulation non adapted to free-range	New insights in food-borne diseases and in the biosecurity concept
Lack of range use: Heat and/or bad weather	Range design and management Trees, verandas, winter gardens
Lack of range use: Range design and management	Personality traits, genetics Relationship with physiological parameters ★

PPILOW WP1.1 What are the levers in poultry production ?

Example: Feather pecking

Type of item to be altered	Rationale of solutions in laying hens
Management: housing	Enrichment, lighting programme, litter quality
Management: outdoor space	High use of the outdoor space
Management: nutrition	Feed distribution: Scattering feed on the floor Reduced diet change occurrence during the laying period Feed presentation and composition
Management: early life management	Specific light during incubation? Enrichment as pullets. Adjusting the time when pullets get access to the range Type of heating ?
Management: flock characteristic	Adding cockerels in the flock?
Management: enrichment	Perches and material to redirect foraging behaviour.
Genetics	Changing genetics and breeding?

PPILOW WP1.1 What are the issues in pig production ?

Data from publications and research projects

General remark: **huge heterogeneity among countries, systems and among farms**

⇒ huge diversity of problems, that are highly **farm-dependent**

⇒ **solutions often already exist**

Sows

Endo and ecto-parasistism

Reproduction: issues related to estrus, poor conception rate and abortion

Piglets

Neonatal mortality (crushing, chilling)

Hunger, anemia, nutritionnal deficiency

Diarrhoea

Endoparasitism

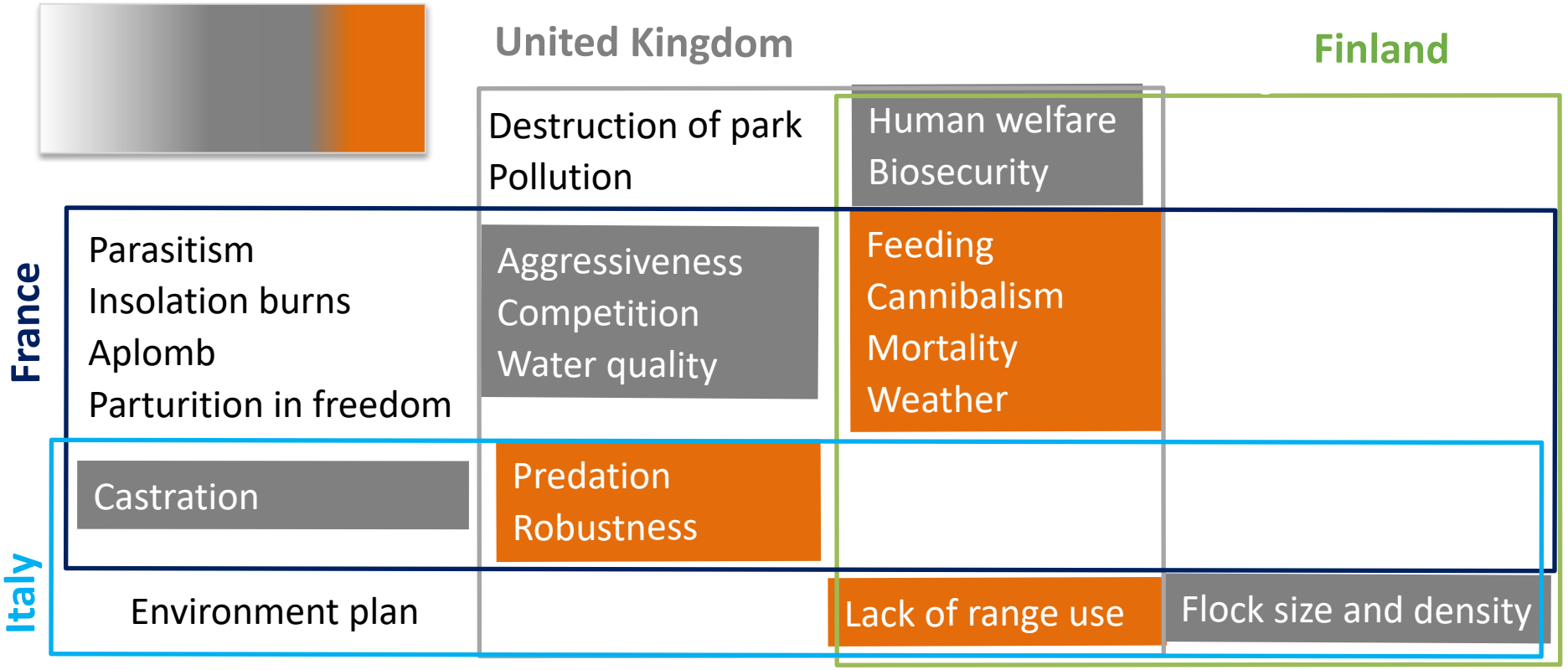
Grower pigs

Diarrhoea, respiratory problems: less significant outdoor than indoor

Endoparasitism

PPILOW WP1.1 What are the main issues in pig production ?

From the interviews



PPILOW WP1.1 What are the levers in pig production ?

Mortality and welfare in piglets

Type of item to be altered	Rationale of solutions: examples in sows and piglets
Management: housing	Huts that protect against heat and cold
Management: housing	Efficient control of temperature, humidity and air quality in the house
Management: Sow behaviour	Well designed pen partitioning to avoid piglet crushing
Management: Sow behaviour	Materials and pen design which allow the sows to build a nest
Sow health	Sow nutrition and environment Phytotherapy in sows
Genetics	Selection for increased robustness and reduced mortality ★ Selection for maternal behaviour

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PPILOW WP 1-2

Identify opinions of stakeholders regarding:

poultry and pig welfare in organic and low-input outdoor farming

the production practices currently employed

and the buying behaviour of consumers

Focus groups

Harper Adams University

- **Lack of consensus as to what constitutes the best practices**

- **Labelling was considered important**

in communicating information regarding production systems and animal welfare to consumers,

however the people were often confused

This reduces the efficacy of communication

- **Industry members showed interest in a smartphone app**

for welfare self-assessment on farm.

App extended **EBENE®**

App developped PIGLOW

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Adequacy of production practices to interest groups and citizens' expectations

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Farm survey

• Farmers indicate that several measures are not applicable despite their benefits:
e.g. increasing space

• Some of the measures divided opinions:
castration, beak trimming, killing day-old male chick

• Higher production costs have to be covered by increasing market prices or by other means

Citizen survey

- Expectations for animal welfare, examples:

  Special expectations / without welfare requirements
  Systems "pleasant" for animals

- Buying behaviour: various influences

- Willingness
  - to get information
  - to pay

Many differences between countries

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Economic viability and value-adding potential of strategies improving animal welfare

THÜNEN

How costly the measures are and do they involve economic benefits?

Examples in pigs

- **Economic value addition of measures was**

Positive:	Biosecurity	+ € 6.4 or more per pig
Unclear:	Genetic selection for low aggression	± € 0.3/finished pig
	Management to reduce piglet mortality	± € 5.1/pig
Negative:	Specific nutrition to lower aggression	- 3.8 c/kg meat

Economic viability and value-adding potential of strategies improving animal welfare

THÜNEN

Several measures were found to be potentially applicable and viable:

Examples for pigs

- **Nutritional** measures, **Genetic selection & Management** to
  - to reduce sow's aggression and susceptibility to environmental stressors outdoors
  - to enhance pig health and reduce piglet mortality ★
- **Enhanced biosecurity**, hygiene and monitoring, **Plants & plant extracts**
  - to reduce antimicrobial use
  - to limit parasitic and bacterial infection pressure
- **Range & Outdoor management**, innovative, animal-friendly hut design
- The rearing of **entire male pigs** ★
- **Welfare self-assessment tools** ★

PPILOW Involvement of National Practitioner Groups

→ Limit damages to pig and hen physical integrity

→ Find alternatives to the elimination of layer male chicks

→ Improve robustness, health & exploration behaviours

Several communications on PPILOW results will be presented in session:

- Range use relationship with welfare and performance indicators in four organic broilers strains – Bonnefous et al.
- Case study of a newly-developed genotype for dual-purpose rearing of male chicks – Lombard, Pluschke et al.
- Poultry production: Using dual-purpose genotypes to reduce the culling of day-old male chicks? – Niemi, Thobe et al.
- Animal welfare and pork quality of intact male pigs in organic farming according to genotype – Lebret et al.
- Large White genetics in organic system: breeding for piglet survival – Canario et al.
- Comparing animal welfare assessments by researchers and free-range pig farmers with the PIGLOW app – Graat et al.

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Poultry and Pig Low-input and Organic production systems' Welfare

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PPILOW Autumn School
"How to improve welfare in poultry and pig low input outdoor and organic farms?"
25-27 October 2023, Assisi (Italy) - Registration deadline: 6 September 2023

Registration

Register to PPILOW Autumn school

www.ppilow.eu

Thank you for your attention

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