Issues and levers for welfare improvements in low input outdoor and organic pig and poultry production

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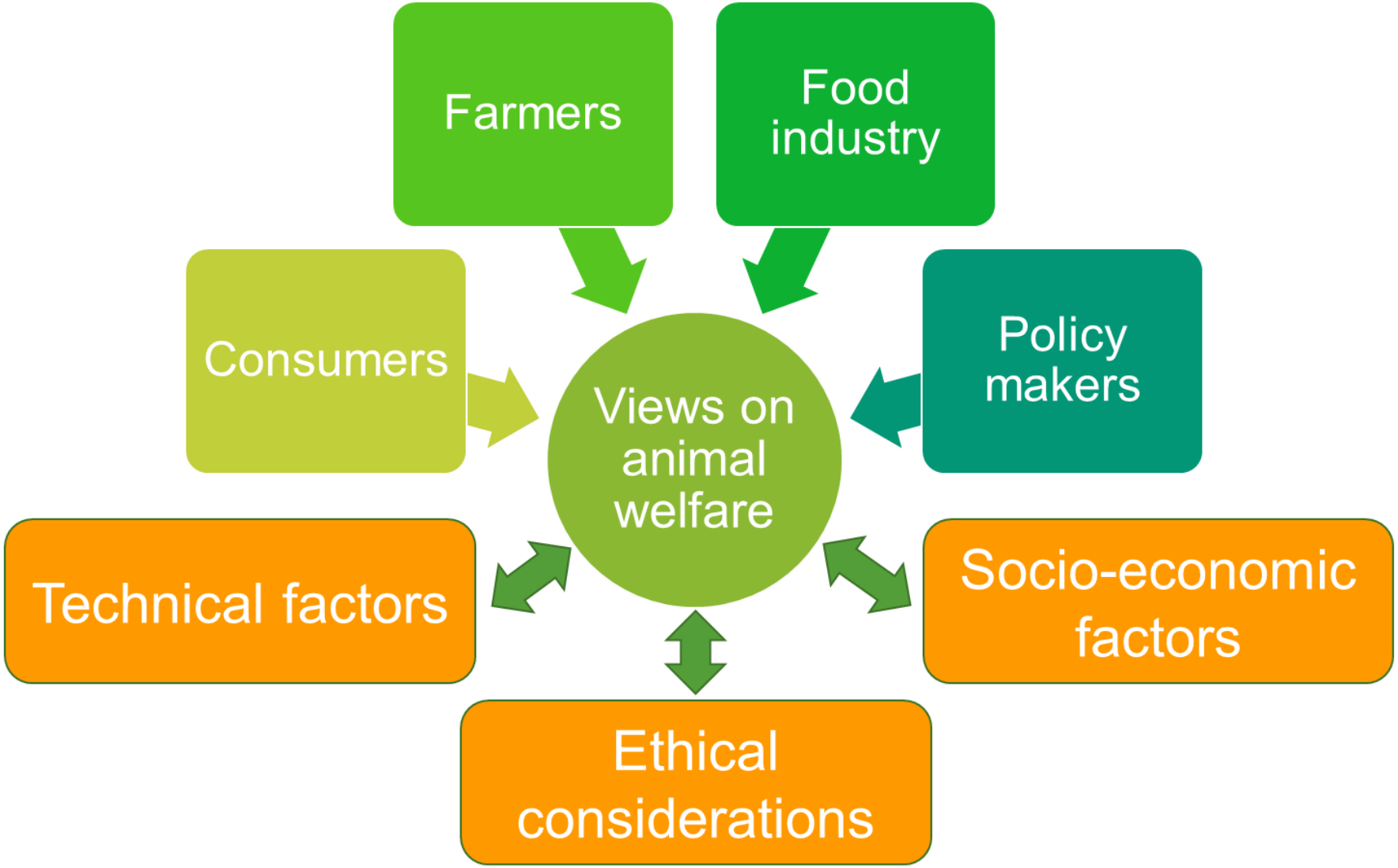
Challenge: socio-economic issues can prevent or boost animal welfare improvements



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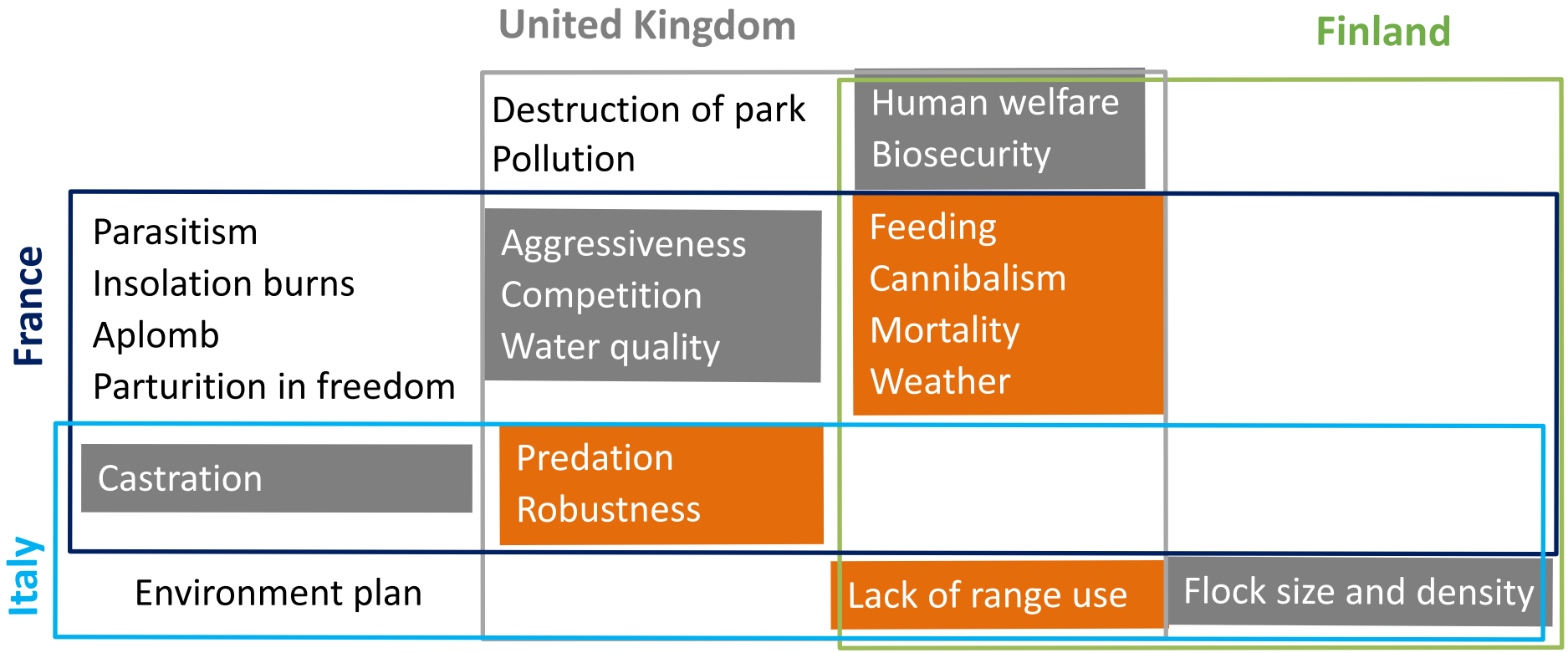
PPILOW - Challenges identified in organic pig production? (based on interviews)



PPILOW - Challenges identified in organic pig production? (based on literature)

Heterogeneity among countries, systems and among farms

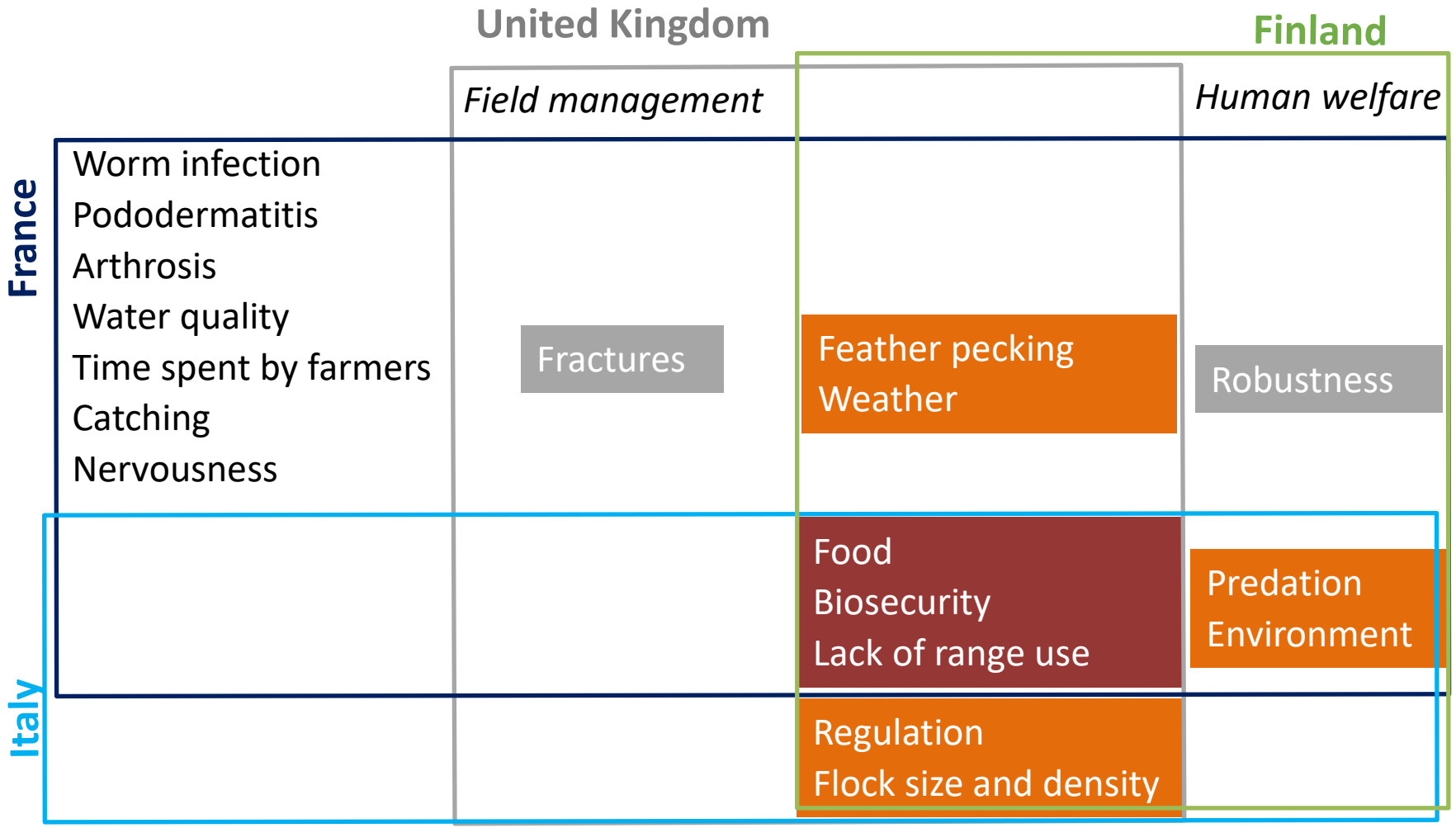
⇒ Diversity of problems, that are often **farm-dependent**

⇒ **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

Issue	Item	Rationale of solution in pig production
Tail biting	Management	• Food and air quality and lower density limit tail biting • Enrichment to occupy piglets • Socialization at early stage
	Technology	Different tools are monitoring piglets and alerting the farmer in order for him to intervene and stop the cannibalism when tails are not docked.

PPILOW– Challenges identified in organic poultry production? (based on interviews)



Issue	Item	Rationale of solution in poultry production
Predation	Management	Guarding animals reduce the losses due to predation Outdoor space Shade, brambles and other structure which allow the hens to hide.
Coping with weather	Building design and light use	Mobile house is a potential lever to cope with adverse weather.
	Management	Housing: Ventilation in the buildings is a lever against hot weather. Early life: Incubation conditions can help to increase the resistance to heat stress and thus coping with hot weather.
	Genetics	Developing genetic resistance to heat stress

PPILOW – Dissemination of our work

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SPECIALTY SECTION
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Welfare issues and potential solutions for laying hens in free range and organic production systems: A review based on literature and interviews

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Work communicated at national and international conferences:

World Poultry Congress 2022
Organic World Congress 2020
SPACE 2021

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

eip-agri
AGRICULTURE & INNOVATION

Bien-être animal en production biologique ou à bas intrants de volailles et de porcs : problèmes identifiés par des informateurs clés de ces productions

PPILOW – Insights from focus group discussions in five countries

Insights from focus group discussions in five countries

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

- **Labelling was considered important** in communicating information regarding production systems and animal welfare to consumers,
- **However, people were often confused** ➔ 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

Economic feasibility?

Photo: iStock /Sonja Filitz

Estimated impact of lever 'genetic selection for reduced aggression' on the key performance indicators of integrated pig production

	Low impact	High impact
Percentage of aggressive primiparous sows	-4.5%	-7.1%
Litter size, aggressive sows when compared with non-aggressive sows	-1.56 piglets	-1.86 piglets
Additional costs of intervention	Paid by breeding organisation	Paid by breeding organisation
Impact on longevity	+0.2 litters	+0.4 litters
Net benefit	-€0.3 per finished pig	€0.4 per finished pig

Examples on how costly the measures are and do they offer economic benefits

- **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

Several measures were found to be potentially applicable and viable:

- **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** ★

Analyzed potentially promising levers in pigs

Type of solution	Lever
Behaviour / Nutrition	Nutritional measures to reduce sows' aggression
Behaviour / Management	Enhanced management to reduce aggression in sows
Behaviour / Genetics	Genetic selection for reduced aggression
Behaviour / Management	Enhanced management to mitigate tail biting (enrichments, housing, no tail docking)
Behaviour / Technology	Technology solutions to detect and mitigate tail biting
Management	Range management
Health	Alternative drugs to reduce parasitic infections and to reduce antimicrobial use
Health / Biosecurity	Enhanced biosecurity and hygiene protocols
Health / Nutrition	Nutritional interventions and enhanced microbiota to promote pig health
Genetics / Ethics	Genetic selection to reduce the susceptibility of animal to environmental stressors in outdoor rearing
Management	Enhanced housing and management to reduce piglet mortality
Health / Technology	Technological solutions to reduce piglet mortality
Health / Management	Enhanced management and monitoring to reduce antimicrobial use
Management / Predation	Control of the risk of predation
Outdoor Management	Outdoor paddock management
Health / Nutrition	Nutritional interventions in growing pigs to promote pig health
Genetics	Using genetics suitable to cope with weather
Management	Deep litter and hybrid straw-flow systems

Estimated impacts of selected levers in pig production

Lever	Range min	Range max	Unit
Nutritional measures to reduce sows' aggression	-3.8	-6.6	Net income, cents/kg meat
Genetic selection for reduced aggression'	-0.3	+0.4	Net income, €/finished pig
Provision of enhanced management to mitigate tail biting when no tail docking is applied, free-range	+0.1	+4.0	Net income, €/finished pig
Provision of enhanced management to mitigate tail biting when no tail docking is applied, organic	> -0.1	+3.5	Net income, €/finished pig
Enhanced management to reduce piglet mortality, free-range	-5.1	-5.2	Net income, €/finished pig
Enhanced management to reduce piglet mortality, organic	-5.7	-9.2	Net income, €/finished pig
Enhanced biosecurity, hygiene and monitoring to reduce antimicrobial use and to improve pig health, organic	+10	+23	Net income, €/finished pig
Enhanced biosecurity, hygiene and monitoring to reduce antimicrobial use and to improve pig health, free-range	+6.5	+11.2	Net income, €/finished pig
rearing entire males as an alternative to castration	-0.5	+10	Net income, €/finished pig

Analyzed potentially promising levers in broilers

Type of solution	Lever
Health	Reduce the use of antimicrobials and prevention of parasitism through provision of alternative drugs (probiotics, prebiotics and plants extracts)
Health	Usage of paper topped with starter feed as alternatives to antimicrobials during the indoor production period of the traditional free-range broiler
Health / Biosecurity	Checking the origin and the content (bacteriological analysis) of the water
Heath/ Biosecurity	Reducing stocking density indoor and reducing litter thickness
Nutrition	Sequential feeding and low protein diet (corn/soya ratio) to reduce leg problems
Early life management	On-farm hatching is getting developed
Early life management	Incubation light during the entire period of the incubation stage influences the adult live
Indoor Enrichments	Indoor enrichments to mitigate nervousness and aggressiveness and stimulate foraging behaviour
Outdoor management	Improving the outdoor run quality
Genetics	Utilising the variation between slow and medium growing genotypes to mitigate feather pecking in organic systems

Estimated impacts of selected levers in broiler production

Lever	Range min	Range max	Unit
Reduce antimicrobial use by provision of probiotics	-3.8	-6.6	Net income, cent / kg live weight
Reducing indoor stocking density	~	+0.20	Net income, cent / kg live weight
On-farm hatching	~	-6.1%	Net annual income, % (€ / year)
Incubation light	-2.0	-3.8	Net income, cent / kg live weight
Indoor enrichments	-5	-5	Net income, cent / kg live weight

Analyzed potentially promising levers in laying hens

Type of solution	Lever
Health	Use of probiotics to prevent reproductive tract lesions
Health	Disease prevention
Health / Biosecurity	Diatomaceous earth (DE) to reduce the parasitic load
Heath/ Biosecurity	Tool to detect if the water is contaminated
Heath/ Biosecurity	Indoor management and nematode infection
Nutrition	Providing ground feathers in the diet
Nutrition	Omega-3 supplementation and herbals supplementation to reduce bone fractures
Early life management	Provide exercise possibility at pullet stage and grid ramp
Genetics	Reducing the risk of feather pecking by the us of enhanced genetics
Genetics	Genetic selection for enhanced bone strength
Behaviour	Stop beak trimming
Health / welfare	Increasing the duration of the laying phase
Feather pecking and forage enrichments	Forage enrichments to stimulate natural foraging behaviour
Outdoor management	Improving the outdoor run quality

Estimated impacts of selected levers in egg production

Lever	Range min	Range max	Unit
Probiotics to prevent reproductive tract lesions	-2	-3.6	Net income, cents/egg
Indoor management and reducing the stocking density’	-1.0	-1.5	Net income, cents/egg
Nutrition: Omega-3 and Omega-6 balance in diets		+3%	Additional feed cost
Stop beak trimming	0.9	0.11	Additional cost, cents/egg
Inrease laying phase duration above current standards		+1.9%	Net income
Forage enrichments’	+1%	+2%	Net income

PPILOW – Surveys to test the acceptance of levers

Farm survey

• Farmers indicate that several measures are <u>not applicable</u> despite their benefits:

e.g. increasing space

Financial provisions

Other barriers prevent their adoption

• Some of the measures <u>divided opinions</u>:

castration, beak trimming, killing day-old male chicks

• Higher production costs have <u>to be covered by increasing market prices</u> or by other means

Citizen survey

- Expectations for animal welfare, examples:

  Special expectations / without such requirements
  Systems “pleasant” for animals

- Buying behaviour: various influences
- Willingness to get information
- Willingness to pay

What do the consumers / the public think?

How do you perceive the conventional indoor production of poultry and pigs (median responses)?

	Unpleasant / Pleasant	B			e / Safe	Unethical / Ethical
FI	3.00				0	2.00
DK	3.00				0	3.00
RO	4.00				0	4.00
GB	2.00				0	2.00
DE	2.00				00	2.00
BE	2.00				.00	2.00
NL	3.00				3.00	3.00
FR	2.00	2.0			2.00	2.00
IT	2.00	2.00			2.00	2.00
All	2.00	2.00			3.00	3.00

For most of the countries, consumers had either "neutral" or "negative" perceptions on **conventional indoor** production of poultry and pigs (Romania exception with "positive" views)

How do you perceive organic production of poultry and pigs (median responses)?

	Unpleasant / Pleasant	Bad[illegible]	[illegible]	[illegible]	[illegible]safe / Safe	Unethical / Ethical
FI	4.00	[illegible]	[illegible]	[illegible]	[illegible]	4.00
DK	4.00	[illegible]	[illegible]	[illegible]	[illegible]	4.00
RO	4.00	[illegible]	[illegible]	[illegible]	[illegible]	4.00
GB	4.00	[illegible]	[illegible]	[illegible]	[illegible]	4.00
DE	4.00	[illegible]	[illegible]	[illegible]	[illegible]	4.00
BE	4.00	[illegible]	[illegible]	[illegible]	[illegible]	4.00
NL	4.00	[illegible]	[illegible]	[illegible]	[illegible]	4.00
FR	4.00	[illegible]	[illegible]	[illegible]	[illegible]	4.00
IT	4.00	[illegible]	[illegible]	[illegible]	4.00	4.00
All	4.00	[illegible]	[illegible]	[illegible]	4.00	4.00

In all countries, consumers had “positive” perceptions on **organic production** compared to conventional indoor production

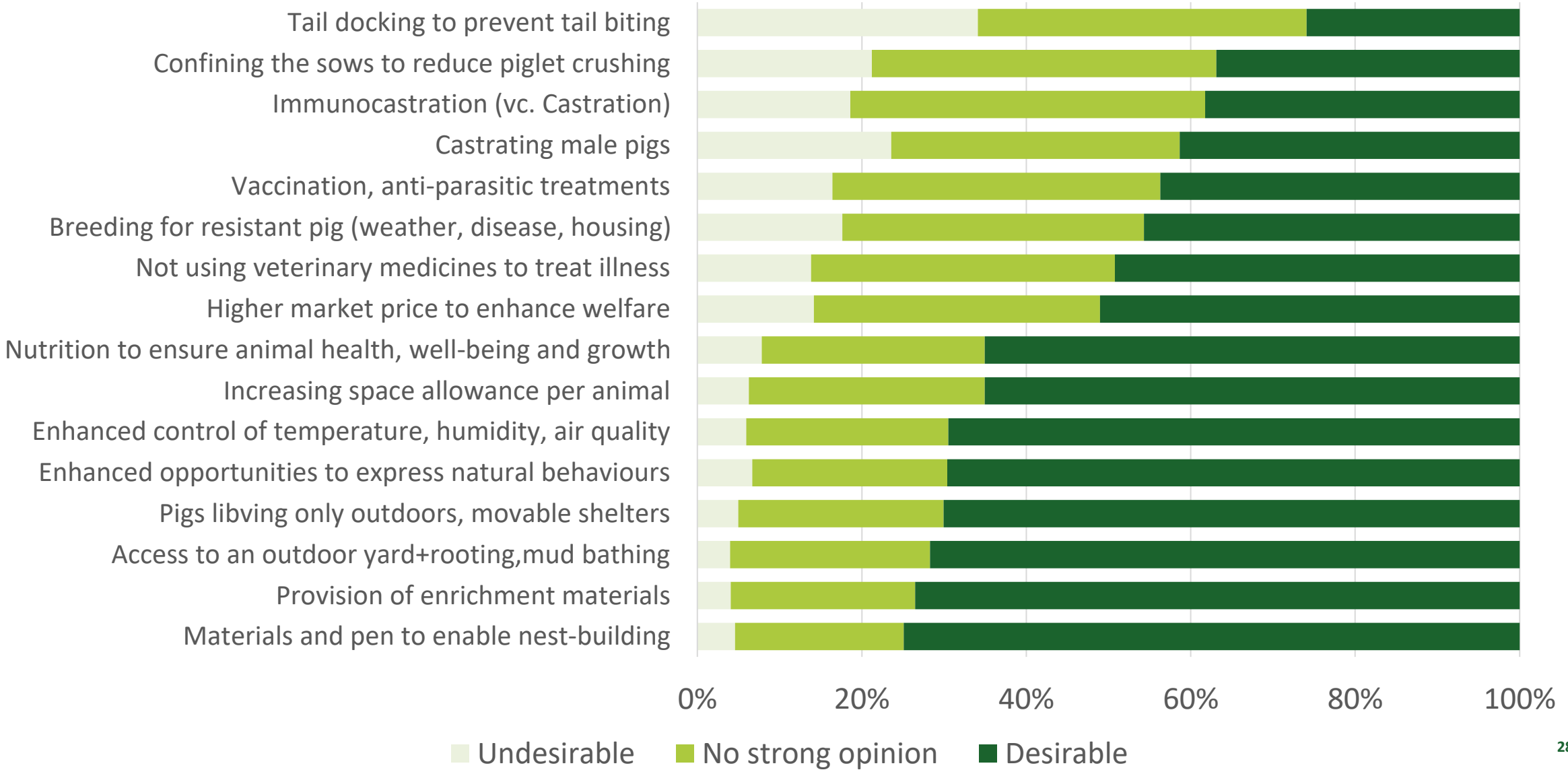
PPILOW

How do you perceive non-organic outdoor production of poultry and pigs? (median responses)?

	Unpleasant / Pleasant	Bad /	afe / Safe	Unethical / Ethical
FI	4.00		00	4.00
DK	4.00		0	4.00
RO	4.00			4.00
GB	4.00			4.00
DE	3.00			3.00
BE	3.00		0	3.00
NL	3.00		00	3.00
FR	4.00		.00	4.00
IT	4.00	4.	4.00	4.00
All	4.00	4.00	3.00	4.00

In all countries, consumers had “neutral or “positive” perceptions on **non-organic outdoor production**

Citizens' views on how desirable *some* measures are in pig production



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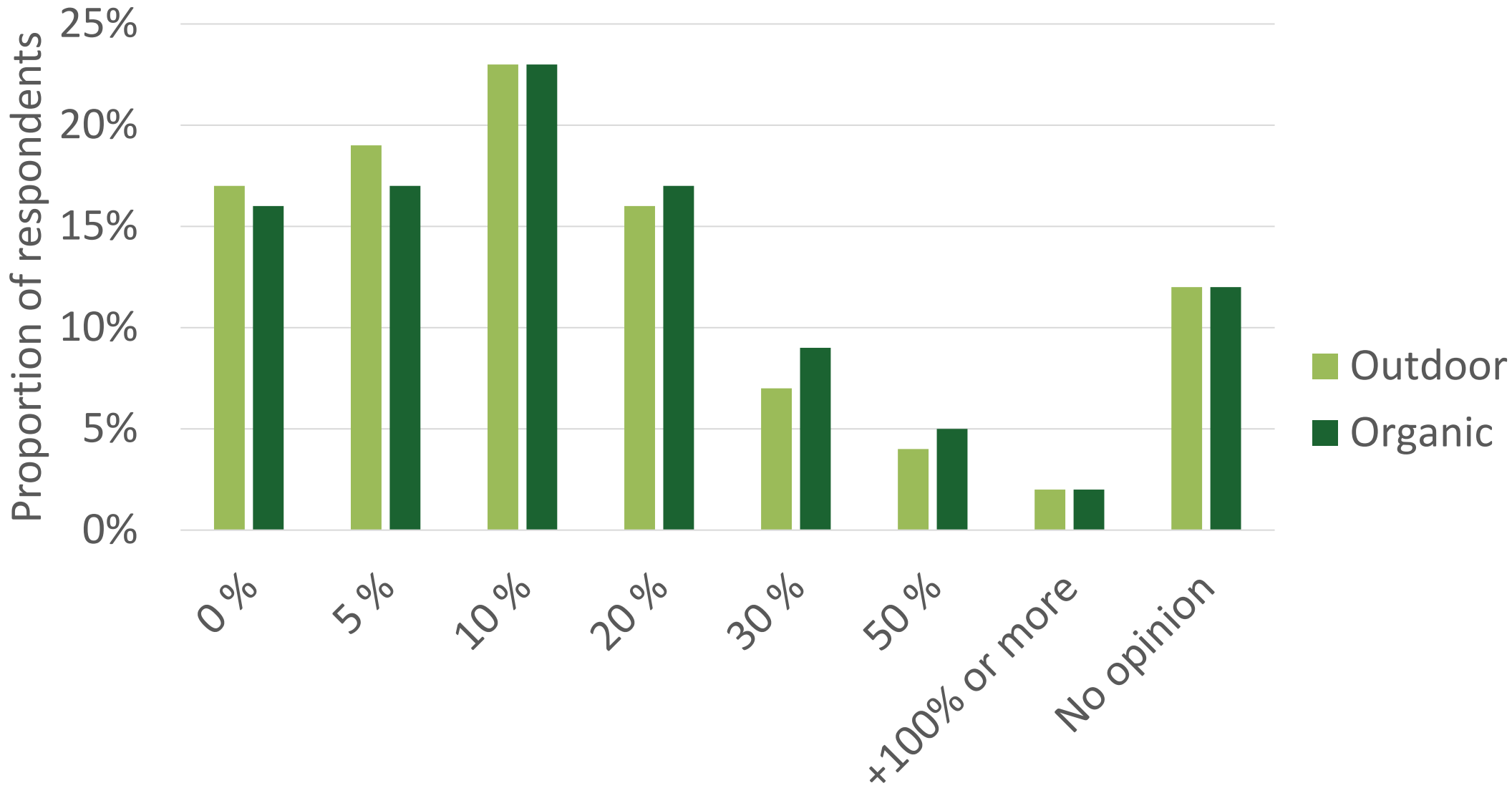
A snapshot from the poultry survey

Desirable	
Enhancing the quality of bedding to ensure animal health, hygiene and comfortable resting	74 %
Building fences and housing to protect the birds from predators and adverse weather	73 %
Allowing the birds access to a field with trees, bushes and other natural elements	72 %
Allowing the birds to live their whole life outdoors in movable shelters	66 %
Restricting the maximum number of birds per flock to enhance bird socialisation and reduce disease risk	69 %
Providing the birds with perches or elevated platforms to increase their mobility	72 %
Rearing slow-growing birds to enhance their welfare and leg health	67 %
Using methods to avoid the killing of one day old male chicks	63 %
Shortening (trimming) the beak of the birds to avoid feather pecking	31 %

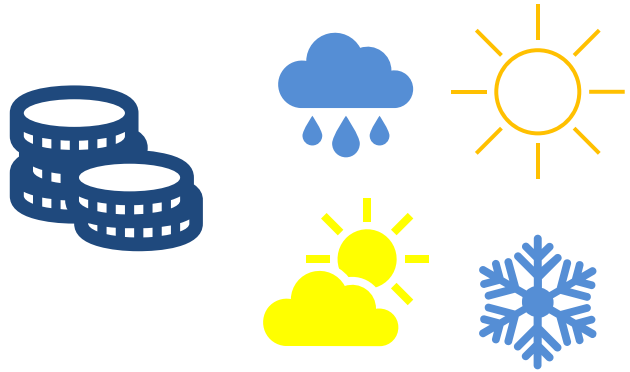
Willingness to price a premium for organic or oudoor production's products



What do the farmers think?

What are the barriers for improving animal welfare?

- **Common factors**
  - Lack of price premium
  - Unpredictability of rules and regulations
  - Strict rules and regulations



- **Farm-specific factors**
  - Cost of implementing measures
  - Measures are difficult to put into practice
  - Increase in labour costs
  - Production conditions on the farm
  - Lack of information, advice and skills

Some are measures considered beneficial but inapplicable? (percentage of respondents, poultry)

	Benefits		Applicability	
Management	**Layers**	**Broilers**	**Layers**	**Broilers**
Nutrition to ensure animal health, welfare and growth				
Use of vaccines to prevent disease				
Use of antiparasitic drugs to prevent disease				
Feeding that supports natural behaviour (e.g. pecking grains)				
Leaving birds' beaks untrimmed to avoid feather pecking				
Avoiding the killing of day-old chicks by using breeds of chickens that can be reared for meat				
Sorting eggs and incubating only female eggs to avoid killing day-old chicks				
Avoiding the killing of day-old chicks by different methods				
Not using veterinary medicines (including antibiotics) to treat disease				
Breeding animals for genetic resistance				
Rearing slow-growing birds to improve their welfare and foot health				

AN EXAMPLE - COMPARISON

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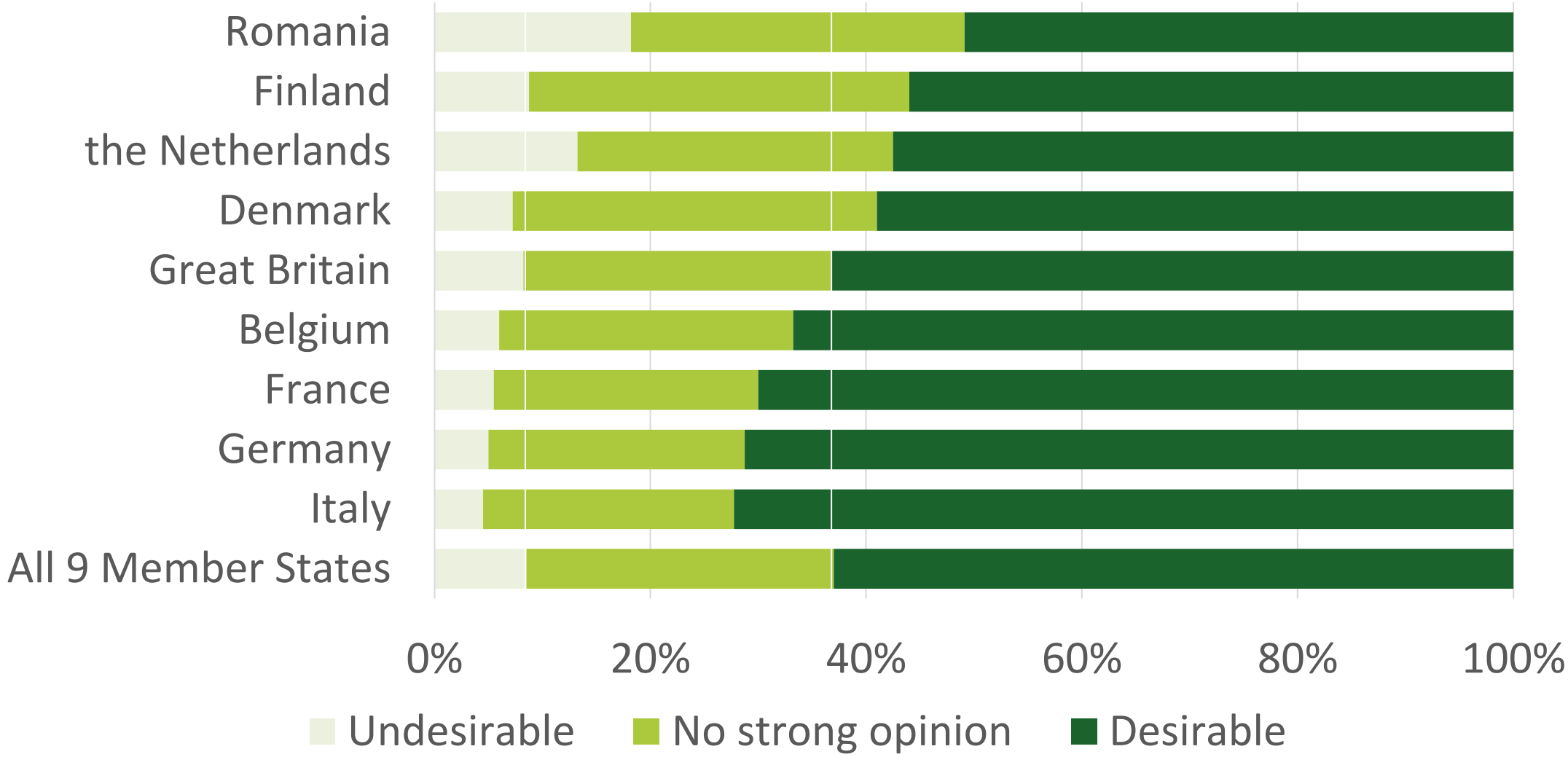
The desirability of using methods to avoid the killing of one day old male chicks

In total, 63% of citizens considered methods that avoid the killing of male day-old chicks as desirable methods.



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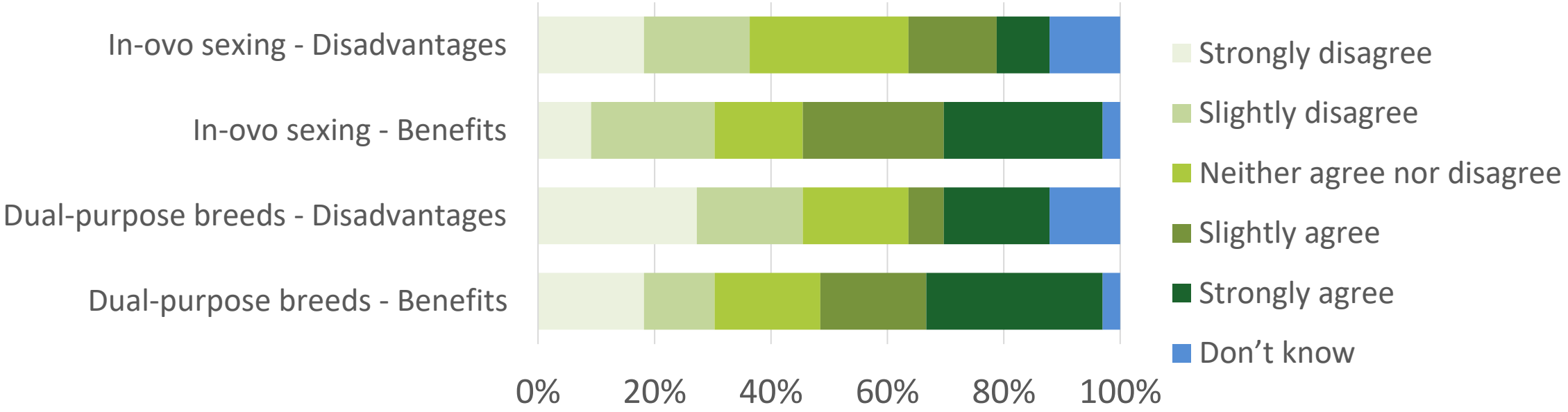
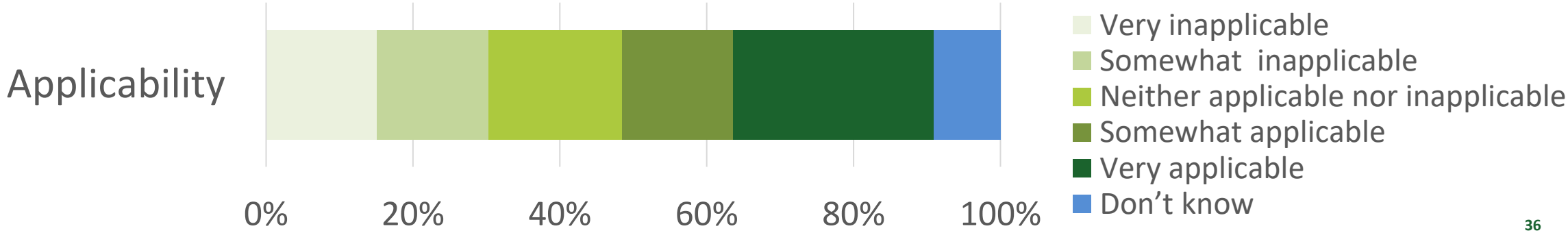
PPILOW – Perceived existence of disadvantage that prevent, and benefits that promote the adoption of practices



In total 42% of producers found that methods that avoid the killing of male day-old chicks were applicable.



Concluding remarks

- Several challenges and ways to tackle these challenges were identified
- Citizens think positively about outdoor and organic farming
- Consumers trust general value-chain actors or NGOs and academic organizations as information sources for animal welfare – However, the level of trust in actors can differ considerably by country!
- For an efficient communication of animal welfare issues, selecting the most appropriate communicators and communication channels is essential, and these may differ by country
- A substantial proportion of citizens did not have a clear view on which features of production they favored (e.g. the use of veterinary medicines).
- Farmers see the benefits of welfare improvements, but not all levers are applicable mainly because of because of financial or practical constraints

PPILOW **PARTNERS**

Thank you for your attention

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