EUFRAS
EUROPEAN FORUM FOR AGRICULTURAL AND RURAL ADVISORY SERVICES

Collaborative Online Forum For Exchange & Engagement

EUFRAS COFFEE Break event in
collaboration with **BroilerNet project**

BroilerNet: From Challenges to Champions

Speakers:

- **Stefan Gunnarsson** (*Swedish University of Agricultural Sciences, SLU*)
- **Annunziata Palamara** (*CRPA Italy*)

Moderator:

- **Anita Dzelme** (*EUFRAS*)

BroilerNet

This project has received funding from the European Union's Horizon Program
Project No: 101060979 under call HORIZON-CL6-2021-GOVERNANCE-01

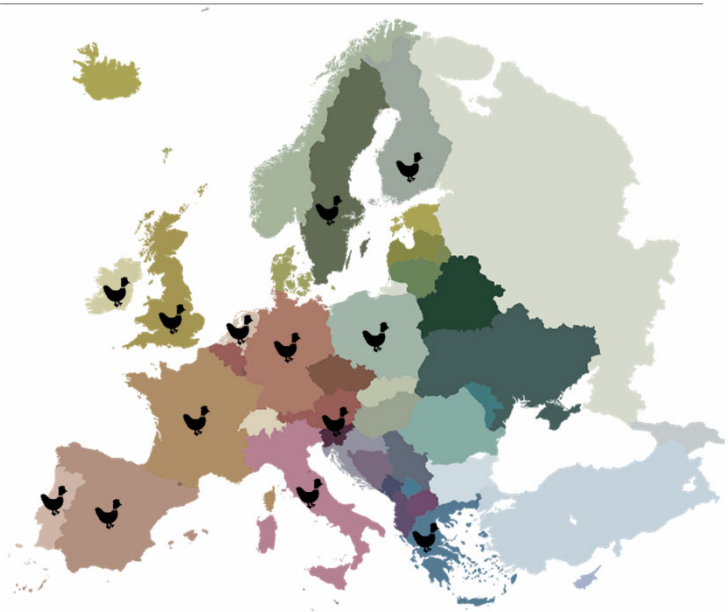
BroilerNet: A European network project for exchange on broiler production

- ”Why do you scientists not listen to us farmers?”

This project has received funding from the Horizon Europe Research and innovation programme under grant agreement No 101060979

European network project

Building a network to enhance the resilience and sustainability of the European broiler sector



- Funding: European Commission
- Duration: 4 years (2022-2026)
- 25 partners in 13 countries
  - 1 industry partner
  - 1 academic partner

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How did it start?

- ***"One evening in Nunspeet, NL in 2019!"***
  - *Better training for Safer Food (BTSF)*

https://broilernet.eu/

- Thematic network within the Broiler sector?

- Challenge for the European poultry meat sector
  - Sustainable global consumption
  - Provide safe and high-quality poultry meat
  - More recently: Mercosur – Global instability – Supply chains

- Society demands more sustainable production
- *EC wants to bring Good practices to the farmers*

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Background

Other thematic networks

EIP-AGRI Operational groups

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Why using practices that already exist?

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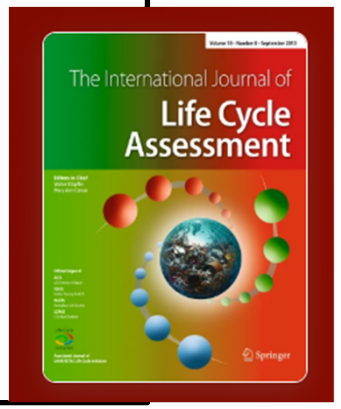
Paths to a sustainable food sector: integrated design and LCA of future food supply chains: the case of pork production in Sweden. Sonesson et al, 2016. Int J Life Cycle Assess 21, 664–676. https://doi.org/10.1007/s11367-015-0969-5

LCA of pig production (smoked ham) in Sweden

- Improvement by implementing available knowledge
- Global warming potential could be reduced by 21–54 %
- Marine eutrophication by 14–45 %

- Approaching the best producers' current performance
  - Increased nitrogen efficiency
  - More varied crop rotations for crop production
  - Better production management
  - Improved animal health



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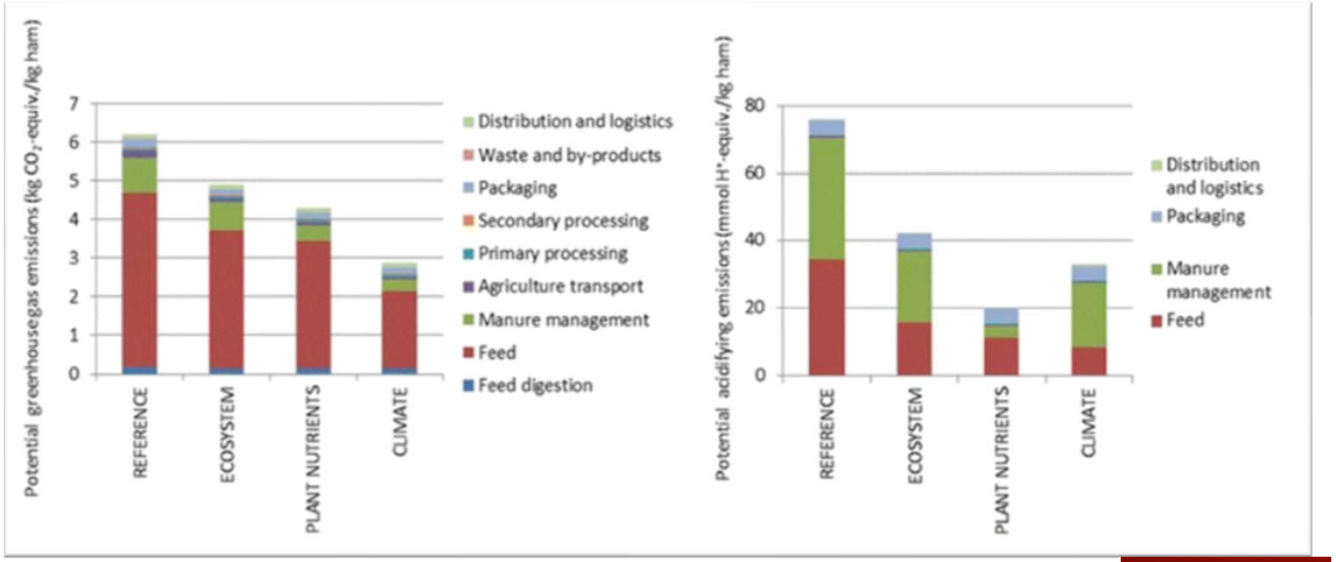
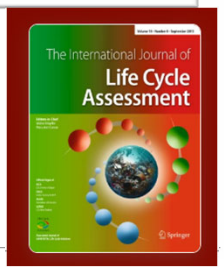


Fig. Greenhouse gas emissions (kg CO_2-equiv./kg ham) and potential acidification in the scenarios (Mol H^+-equiv./kg ham)



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Objectives

Building **networks** on national and international level

Fostering **interaction** between science and practice

Collecting ready-to-use innovative **good practices**

Three themes:

Animal Health

IRTA

Animal Welfare

FLI

Environmental Sustainability

CRPA

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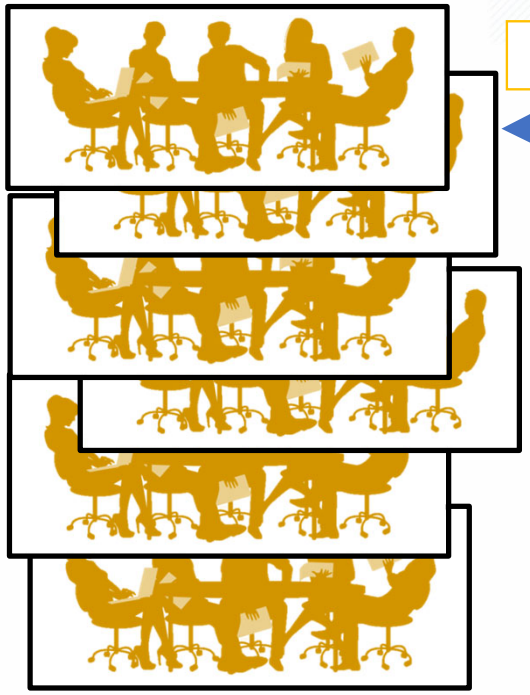
13 Broiler Innovation Networks (BINs)



Facilitators

Sector challenges
→ Good Practices

3 Thematic expert networks (TENs)

This project has received funding from the Horizon Europe Research and innovation programme under grant agreement No 101060979

BIN meeting in Finland and Slovenia

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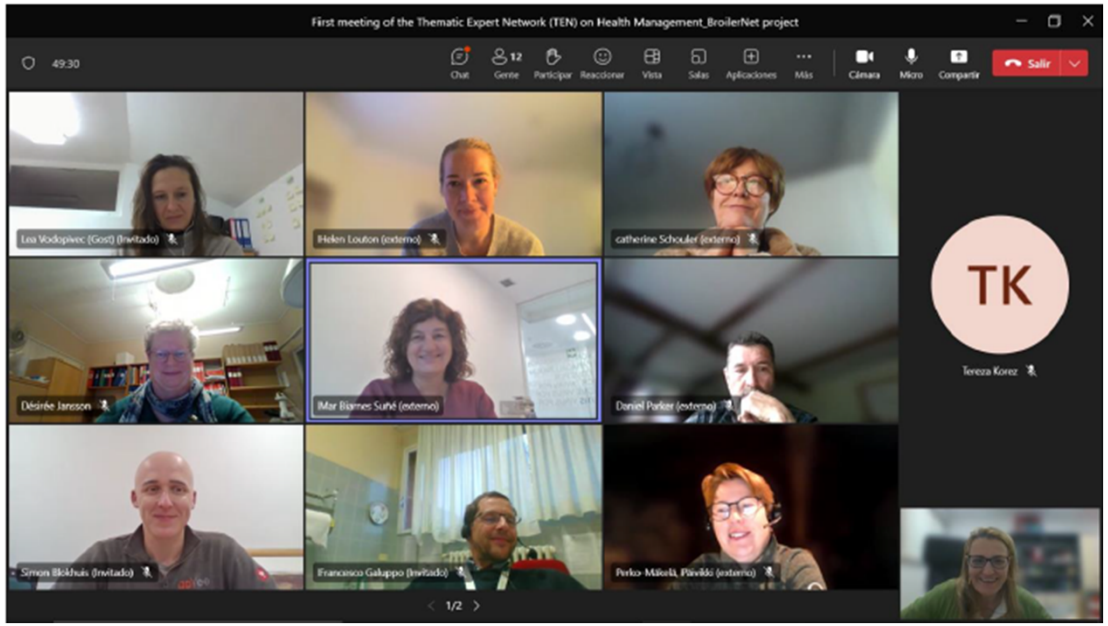
Thematic Expert Networks (TENs) (Cross-country)



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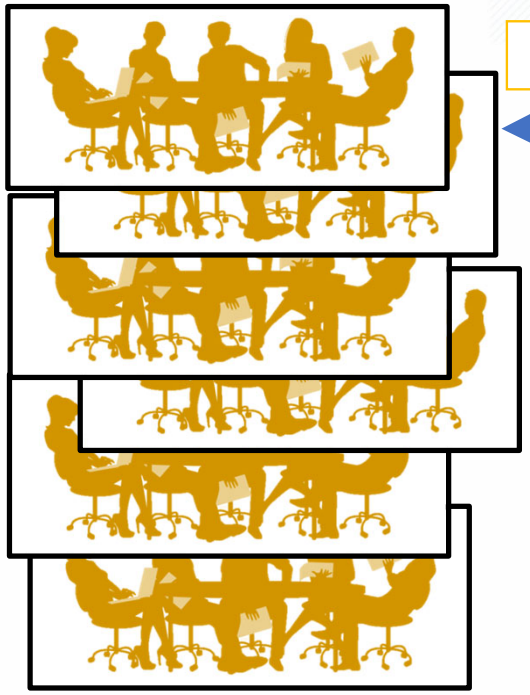
BroilerNet

13 Broiler Innovation Networks (BINs)



Facilitators

SC?

GP!

Sector challenges → Good Practices

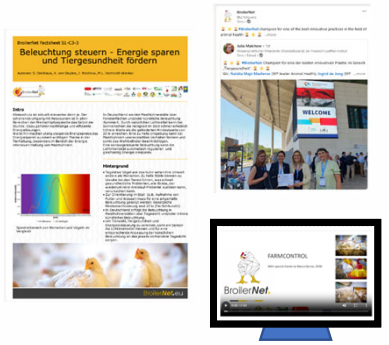
3 Thematic expert networks (TENs)

Best of Good Practices

Cost-benefit analysis

BroilerNet Champions

Dissemination



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Cost-benefit analysis (1/3)

The approach based on the typical farm concept:

Farm type – a farm that meets specific critieria (e.g., broiler, small, conventional, organic, ….)

Typical farm – a farm representing specific farm types and the most common (prevailing) in the country (region).

Criteria	Farm types						
Production system	Conventional			Free Range		Organic	
Herd size	small	medium	large	small	medium	small	medium

Models of typical farms constructed for a selection of farms in each participating country based on farm surveys.

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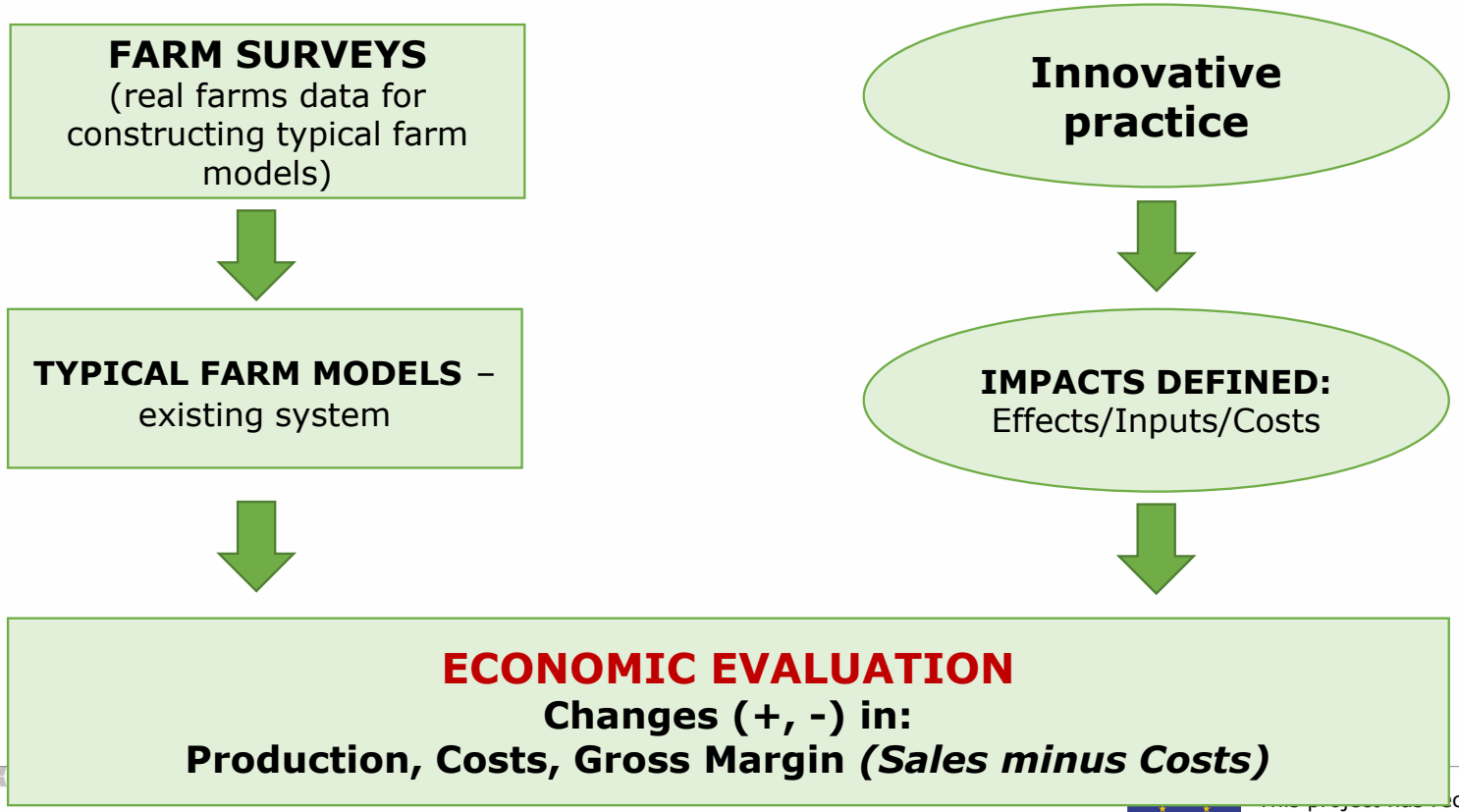
Cost-benefit analysis(2/3)

COST - BENEFIT ANALYSIS: GENERAL APPROACH



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Cost-benefit analysis (3/3)

Stages of Economic Assessments Procedure:

1. **Understanding Good Practices descriptions**
2. **Logical analysis of impacts**
3. **Assumptions and parameters for the assessments, based on:**
   - *real farm data from GP descriptions;*
   - *additional information from the literature search;*
   - *consultations with external experts*
4. **Economic assessments:**

A. Partial budgeting approach – for practices which don't impose investments in fixed assets:

Additional revenues (benefits) – Additional costs

B. Formal Cost Benefit Analysis for practices involving investments in fixed assets, including Time Value of Money

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Farm type model examples

Financial parameters and cost structure for selected conventional farms and medium-sized flocks

Item	PL_Medium	IT_Medium	DE_Medium	FR_Medium	ES_Medium
Revenues (€/kg LW)	**1.34**	**1.33**	**1.26**	**1.01**	**1.28**
Variable costs (€/kg LW)	**1.22**	**1.17**	**1.00**	**0.89**	**1.06**
Feed (%)	**71.5**	**74.7**	**80.8**	**67.0**	**65.1**
Chicks (%)	**13.5**	**13.2**	**11.4**	**16.0**	**15.2**
Labour (%)	2.1	3.5	1.1	2.0	2.4
Litter (%)	0.1	0.9	0.4	4.0	11.7
Veterinary costs (%)	4.0	0.9	1.1	4.0	1.5
Energy (%)	5.9	5.6	2.9	3.0	2.3
Other costs (%)	2.9	1.2	2.3	4.0	1.8

Models contain also a set of technological parameters: e.g., length and number of cycles, density kg/m2, FCR, mortality, energy, water consumption

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Sector Challenges in First cycle

Broiler Welfare	Health Management	Environmental sustainability
Applying holistic genetics and breeding	Improving biosecurity	Reaching carbon neutrality and a reduced environmental footprint
Improving farmer/worker training around bird welfare	Fighting against Highly Pathogenic Avian Influenza	Using sustainable and high quality feed sources
Maintaining a stable (indoor) climate	Reducing antimicrobial use	Improving energy management

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Top 5 Good Practices – Health Management
First cycle

Final results of Top 5 GPs and the champions

Improving Biosecurity	
Greece	Fence around the farm
Greece	Water disinfection
Portugal	Create sanitary barriers – changing rooms, visits restricted to minimum
France	Dedicating small equipment by zone and house (colour coded)
Spain	Perimeter paving of the broiler house

Fighting Avian Influenza	
Greece	Early involvement of vets at possible symptoms
Germany	Self analysis for AI risk factors
Spain	Disinfection after HPAI focus
France	Biosecurity of catching teams and machines
France	Indoor euthanasia for depopulation using whole-house gassing

Reducing use of Antimicrobials	
Netherlands	Feeding whole wheat
Finland	Water circulation central heating with renewable energy
Netherlands	Vaccination instead of anticoccidials
Finland	All in, all out – no thinning
Poland	Using phytobiotic feeding supplement

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Champions: 1rst cycle summary

Good Practice (Champion)	Title	Investment in fixed assets	Economic effects
AW_GP21	Provide the farms with elevated platforms as a mitigation strategy for the negative effects of genetic selection for rapid growth on lameness (Spain)	Yes	**positive** (negligible)
AW_GP23	Internal audits regarding on-farm euthanasia" was selected as BroilerNet Champion by the TEN experts (Spain)	No	**neutral** the additional costs are balanced with the assumed benefits
AW_GP27	Foot health program (Sweden)	No	**negative** (*lowering density „punishment"*) or **positive** (*keeping density*) economic effect
HM_GP_5	**Water circulation central heating with renewable energy (Finland)**	**Yes**	**positive (low)**
HM_GP_12	**GP 12 Avian Influenza: self-analyse for risk factors (Germany)**	**No**	**neutral (additional costs are balanced with the assumed benefits**
HM_GP_39	**GP 39 Dedicating small equipment by zone and house - colour per house (France)**	**Yes**	**positive (low)**
ENV_GP17	GP 17 Transfer of manure to produce fertiliser (Italy)	Yes	**positive**
ENV_GP19	GP 19 Electricity from photovoltaics (Italy)	Yes	**positive** (good)
ENV_GP27	GP 27 Promote insects as proteins (France)	No	**negative**

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Considering

- **Economic impact depends on production scale**
  - larger farms benefit more, while for smaller farms financial are probably not a significant incentive.

- **Low-cost and „no financial gain” good practices**
  - should still be promoted if they generate Animal Welfare, health and environmental benefits.

- **Public support may be justified for costly investments**
  - generate positive social and environmental effects to compensate financial losses.

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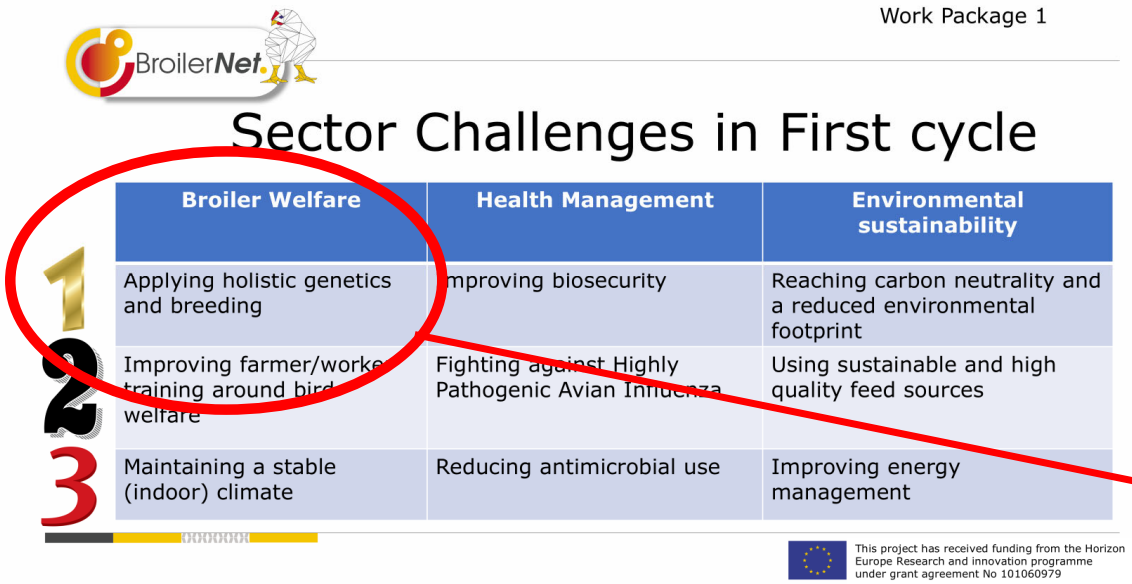
Animal Welfare theme



- Provide the farms with elevated platforms
  - mitigation strategy of the negative effects of genetic selection for rapid growth on lameness

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Provide the farms with elevated platforms mitigation strategy of the negative effects of genetic selection for rapid growth on lameness

- https://broilernet.eu/elevated-platforms-as-enrichment-material-spain/

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GP Short Description

- Different materials can be used to construct platforms: plastic, wood, and straw in bales;
- Platforms should be introduced by the second week of rearing
- At least one platform should be provided for every 500 m² of usable area of the poultry house.
- In the economic evaluation the use of plastic platforms is considered as implemented on a real farm.

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GP Assumptions for typical farm models

Item	Good Practice description (A)		Scientific expert (B)		Benefits reduced (C)	
	Benefits	Inputs /Costs	Benefits	Inputs /Costs	Benefits	Inputs /Costs
Weight gains g/broiler	*none*	*none*	20		10	
Increased sales	*none*	*none*	0,8 % of live weight		0,8 % of live weight	
Veterinary Costs	*none*	*none*	minus 2%		1%	
Labour Input	*none*	*none*		2%		2%
Costs of cleaning and disinfection	*none*	*none*		1,5%		1,5%
Mortality	*none*	*none*	1 percentage point (pp) less		1 percentage point (pp) less	
Additional inputs / investments (Good Practice description)						
Platform	2,1 m^2, six platforms per 30,000 birds					
Cost €/1000 birds /year	11					
Unmeasurable effects						

beneficial effects on broiler welfare, allowing them to display natural behavior

GP Results

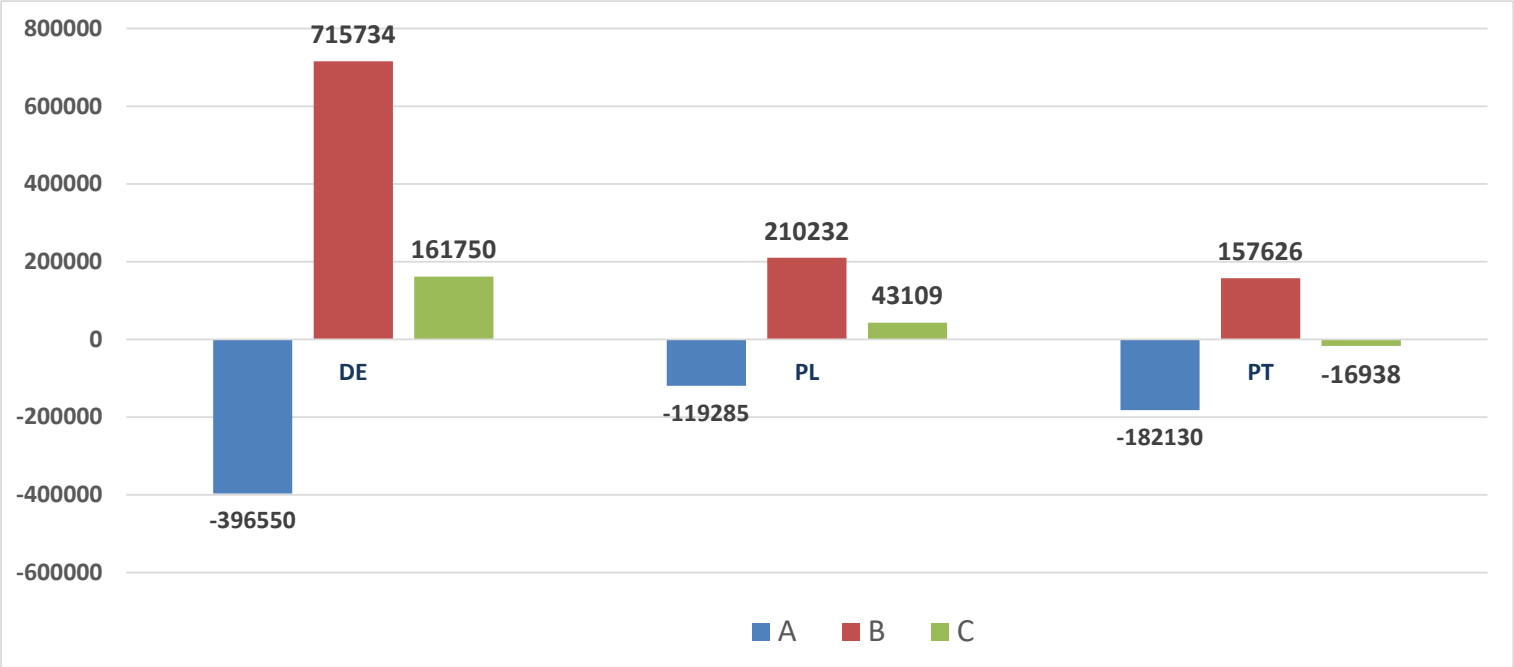
GP 21: Gross Margin (€/kg live weight) in model variants by farm type and country

	Gross Margin	Change GM in % [Base=100]			Gross Margin in relation the base model (€/kg live weight)		
Country	Base	A	B	C	A	B	C
Small							
ES	0,113	95,8	104,9	100,1	-0,005	0,006	0,000
PL	0,088	95,5	111,5	103,6	-0,004	0,010	0,003
SI	0,228	97,9	102,4	100,1	-0,005	0,006	0,000
GR	0,159	97,2	105,4	101,2	-0,004	0,009	0,002
UK	0,227	97,9	105,5	101,5	-0,005	0,012	0,003
Mean	0,170	97,3	104,9	101,0	-0,005	0,008	0,002

Introducing platforms results in a very small decrease (almost negligible) of Gross Margin per kilogram of live-weight if broilers in variant A, in which no benefits was foreseen according to the GP21 description.

GP Results cont.

GP21: financial gains or losses in EUR per farm in country models of VERY LARGE flocks in A, B and C variants



DE model – 3 times large flock and sales compared to other models

Results cont.

GP21: selection of indicators for modelled farm types

Model/ Variant	Number of broilers sold in 2022 I th.]	Sales of broilers		Share in %		Revenue (EUR/kg live weight]	Total direct costs [EUR/kg live weight]	Gross margin [EUR/kg live weight]
		Weight [In tons]	Change [Base=100]	Feed	Chicks			
Base								
Small	145,7	360,7	100	69,0	16,7	1,249	1,079	0,170
Medium	410,4	998,3	100	70,8	15,9	1,237	1,053	0,183
Large	1332,6	3134,6	100	71,2	17,0	1,271	1,077	0,194
Very Large	20474,5	48082,0	100	72,0	16,0	1,262	1,131	0,131
A.								
Small	145,7	360,7	100	68,7	16,7	1,249	1,084	0,165
Medium	410,4	998,3	100	70,5	15,8	1,237	1,059	0,178
Large	1332,6	3134,6	100	70,9	16,9	1,271	1,083	0,188
Very Large	20474,5	48082,0	100	71,7	16,0	1,262	1,136	0,126

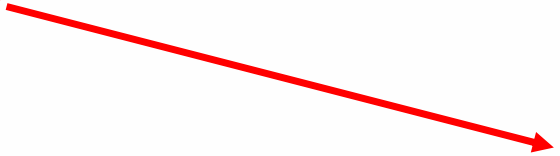
GP AW Conclusions

1. The practice is easy to implement and very cheap
2. Variant A (no measurable benefits from its implementation), results with the Gross Margin reduction compared to the reference (Base Model 2022).
3. Slight benefits are generated in variants B and C.
4. The number of broilers, sales volume and final weight of broilers are the main factors shaping the economic effects.
5. The implementation of the practice does not cause changes in production indicators, nor in the cost structure.
6. GP21 improves animal welfare and can be recommended to be implemented on a large scale.

This project has received funding from the Horizon Europe Research and innovation programme under grant agreement No 101060979

Health management theme

Challenge 1
Reducing the persistence and recurrence of Enterococci



Good Practice: Advanced biosecurity measures for Enterococcus control

This project has received funding from the Horizon Europe Research and innovation programme under grant agreement No 101060979

Good Practice: Advanced biosecurity measures for Enterococcus control to Reduce the persistence and recurrence of Enterococci

https://broilernet.eu/advanced-biosecurity-for-enterococcus/

This project has received funding from the Horizon Europe Research and innovation programme under grant agreement No 101060979

BroilerNet Factsheet AH3-C2-1

Advanced Biosecurity Measures for Enterococcus Control

Author: Zoi Prentza, DVM, MSc, PhD. *Veterinarian at Ioannina Agricultural Poultry Cooperative PINDOS, Greece*

Introduction to Good Practice

This Good Practice (GP) focuses on the control and mitigation of **Enterococcus**, a persistent pathogen that poses a significant threat to bird health, welfare, and farm profitability.

It outlines a **comprehensive**, **multi-layered biosecurity strategy** implemented across a large-scale production system involving 50 million birds per year.

Non-porous Infrastructure at Broiler Farm

Enterococcus strains can lead to increased mortality, lameness (e.g., femoral head necrosis, spondylitis), and systemic infections in broiler flocks. Their ability to persist in biofilms within water systems and porous surfaces makes conventional sanitation insufficient. Therefore, this GP emphasizes prevention, environmental control, and microbial exclusion.

Background & challenges

Core Components of the Good Practice

The strategy shifts from reactive treatment to proactive prevention, based on three primary pillars:

- **Environmental and Structural Integrity**

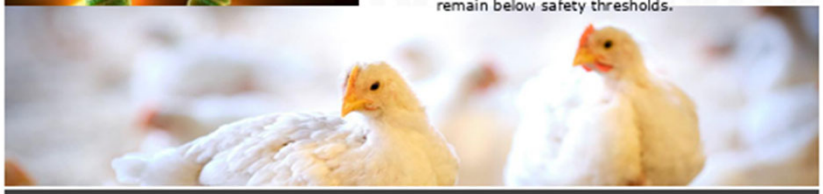
To eliminate "reservoirs" where bacteria hide, the practice emphasizes:

- **Non-porous Infrastructure:** The transition to smooth, non-porous surfaces for floors and walls reduce bacterial persistence and improve disinfectant efficacy.
- **Structured Cleaning Protocol (3–5 days):** Sequential dry cleaning, washing, hot water application, disinfection, and complete drying. Thermal treatment disrupts biofilms, while proper drying prevents pathogen survival.
- **Outbreak Deep-Clean:** Intensified sanitation and extended downtime to fully break the infection cycle.

2. Water System Hygiene and Biofilm Eradication

Water is a primary vector for Enterococcus. This GP utilizes:

- **Thermal Disinfection:** Applying hot water during the cleaning cycle to physically break down biofilms.
- **Microbiological Monitoring:** Rigorous, scheduled testing of water supplies to ensure bacterial loads remain below safety thresholds.



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Advanced Biosecurity Measures for Enterococcus Control.

Author: Zoi Prentza, DVM, MSc, PhD. *Veterinarian at Ioannina Agricultural Poultry Cooperative PINDOS, Greece*

Additional information

This approach promotes the establishment of a stable and diverse gut microbiome.

3. Targeted Microbial Control

Probiotic Spraying: After drying, environmental probiotics are sprayed to establish a protective microbial biofilm. Chick placement follows the next day to maximize competitive exclusion.

Vertical Transmission Prevention: Strict disinfection of hatching eggs and the separation of "dirty" floor eggs to ensure chicks begin their life cycle in a sterile environment.

Gut Health Promoters: Balanced nutrition combined with strategic use of probiotics/synbiotics and selected phytogenic compounds (e.g., thyme-, mint-, garlic-, oregano-based formulations) supports intestinal integrity and microbial balance throughout the production cycle.

Benefits

The implementation of these measures carries a direct cost of approximately **€0.01–€0.02 per bird** (excluding initial infrastructure investments).

However, the return on investment (ROI) is realized through:

- **Reduced Mortality:** Direct preservation of flock numbers.
- **Enhanced Productivity:** Improved Feed Conversion Ratios (FCR) and daily growth rates due to better gut health.
- **Risk Mitigation:** A lower likelihood of Salmonella detection and reduced needs for emergency veterinary interventions.

Rigorous, scheduled testing of water supplies to ensure bacterial loads remain below safety thresholds.

Beneficial microbes, phytogenics, and balanced nutrition for improved performance.

Hot water during the cleaning cycle.

Publication date: 10-03-2026 *Version: 1 EN*

Funded by the European Union

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No101060979. It reflects only the authors view. The European Commission is not responsible for any use that may be made of the information it contains.

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Water circulation central heating with renewable energy - to reduce Foot pad dermatitis and use of Antimicrobials

https://broilernet.eu/water-circulation-central-heating-with-renewable-energy-finland/

This project has received funding from the Horizon Europe Research and innovation programme under grant agreement No 101060979

Many thanks to the EC, the BroilerNet team and WP-leaders!

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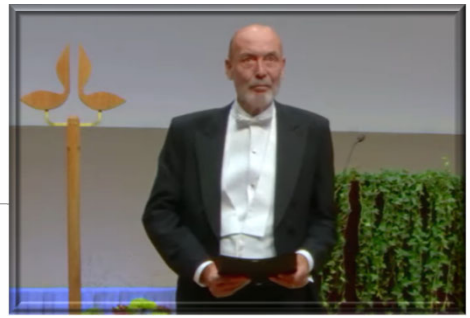

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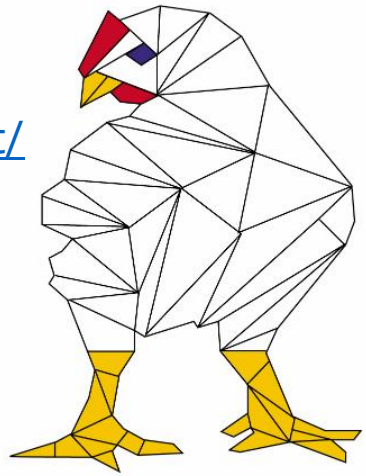

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This project has received funding from the Horizon Europe Research and innovation programme under grant agreement No 101060979

BroilerNet.

National Broiler Innovation Networks:

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Thank you