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## **SOA 17: Sustainability aspects of AW-promoting livestock systems - Cogwheel Workshop between aWISH and EUP AH&W on monitoring/assessment of animal welfare**

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European Partnership on  
Animal Health and Welfare

## SOA 17

Sustainability aspects of AW-promoting livestock systems

# Objectives of SOA 17

- To build a multidisciplinary scientific network to integrate animal welfare as a major component of the sustainability of livestock farming systems (i.e. multi-performance of animals and farms).
- The approach is to understand:
  - how improving welfare of farm animals may contribute to impact the sustainable performances of farms (for farmers, the environment and society),
  - how the usual levers to achieve livestock sustainability (economic, environmental and societal dimensions) impact animal welfare (and animal health).



# Organisation of the action

## T1 Elaboration of a multidisciplinary network and prioritisation of case-studies

- T1.1 Identification of practices promoting AW
- T1.2 Identification of potential trade-offs and synergies between AW friendly systems and environmental, economic and social sustainability
- T1.3 Identification of experts within the RPO's bringing complementary skills (economics, ecology, sociology)
- T1.4 Selection of priority topics for case-studies

## T2 Development of a shared methodology based on a multicriteria assessment of sustainability

- T2.1 Survey and workshop
- T2.2 Evaluation and harmonisation of sustainability evaluation protocols

## T3 Case studies promoting

- AW and investigating impacts on the other sustainability criteria
- other sustainability criteria and investigating impact on AW

## T4 Dissemination at the different levels of the outcomes of the case-studies

2024

2025

2026

March 2027

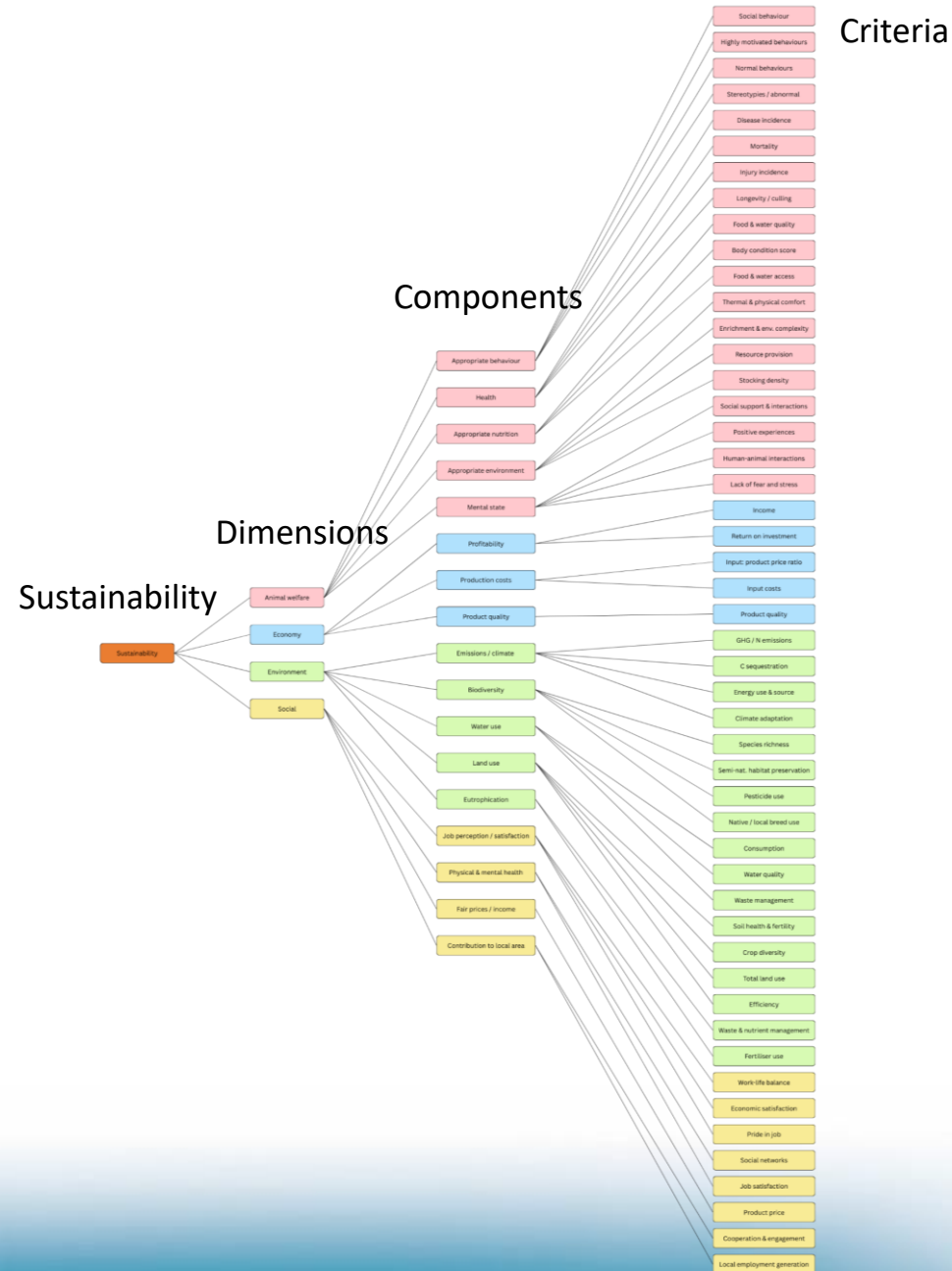


# Sustainability assessment framework

- **Objective:** To integrate methods of animal welfare and general sustainability metrics into a single, multi-criteria assessment
- **Methodology:**
  - Surveys to gather information on existing sustainability and animal welfare assessment schemes
  - An online workshop to discuss aggregation and reporting



# Sustainability assessment framework



Dimension	Component	Criteria	
Animal welfare	Appropriate behaviour	Social behaviours	
		Highly motivated behaviours	
		Normal behaviours	
		Stereotypes/abnormal behaviours	
	Health	Disease incidence	
		Mortality	
		Injury incidence	
		Longevity/culling	
	Appropriate nutrition	Food and water quality	
		Body condition score	
		Food and water access	
	Appropriate environment	Thermal and physical comfort	
		Enrichment and env. complexity	
		Resource provision	
	Mental state	Stocking density	
		Social support and interactions	
		Positive welfare/experiences	
		Human-animal interactions	
			Lack of fear and stress



# Sustainability assessment framework

Dimension	Component	Criteria
Economic	Profitability	Income
		Return on investment
	Production costs	Inputs: product price ratio Input costs
	Product quality	Chemical usage and safety
Environmental	Emissions/climate change	GHG emissions
		Carbon sequestration
		Energy use and source
		Climate adaptation
	Biodiversity	Species richness
		Semi-natural habitat preservation
		Pesticide use
		Native/local breed use
	Water use	Consumption
		Water quality
		Waste management
	Land use	Soil health and fertility
		Crop diversity
		Total land use
Efficiency		
Eutrophication	Waste and nutrient management	
	Fertilizer use	

Dimension	Component	Criteria
Social	Job perception/satisfaction	Work-life balance
		Economic satisfaction
		Pride in job
	Physical and mental health	Social networks
		Job satisfaction
	Fair prices/income	Product price
Contribution to local area	Community engagement and cooperation	
	Local employment generation	



# Case studies

- **Objective:**

To gather the experts of the multidisciplinary network of SOA 17 to test the shared sustainability assessment framework developed in the project
- **Methodology:**

Based on data of existing projects or dedicated experimentation or modelling, carry out studies promoting AW and investigating impacts on other sustainability criteria or promoting other sustainability criteria and investigating impact on AW



# Case studies

- 19 case studies selected, covering
  - 5 groups of species : Aquatic animals, Ruminants, Pigs, Poultry, Rabbits
  - 13 welfare topics (issues) identified in T.1
  - Animal Welfare + 1 to 3 dimensions of sustainability
- Work in progress
  - Results by the end of 2026



# Case studies : Fish (2), Ruminants (8)

Species	Topic	Study
1. Aquatic species	1.1 Stocking density of trout inland farms	1.1.1 Stocking density in rainbow trout inland farms
	1.2 How using computer vision and AI to estimate fish size and weight affects sustainability	1.2.1 Effects of automated farmed fish size and weight estimation based on computer vision and AI tools on sustainability
2. Ruminants	2.1 Providing outdoor access to ruminants	2.1.1 Rearing dairy cow offspring on outdoor pasture
		2.1.2 Animal welfare and environmental and social sustainability in potentially animal-welfare-promoting and intensive milk production systems
		2.1.3 The environmental impact of giving dairy cattle access to outdoor pasture
		2.1.4 Animal welfare in extensive breeding
		2.1.5 Pasture-based outdoor access of dairy sheep
	2.2 Increasing indoor space for beef cattle	2.2.1 Monitoring welfare and life cycle assessment of beef cows in increased indoor space conditions
	2.3 Prolonged cow-calf contact in the dairy production	2.3.1 Cow-calf contact in dairy production – a cohort study
		2.3.2 Effects of duration of cow-calf contact on dam and daughter welfare and milk production



# Case studies : Pigs (9)

Species	Topic	Study
3. Pigs	3.1 Providing more enrichment to enable exploratory and foraging behaviours in rearing/fattening pigs	3.1.1 Outdoor access to crops on pasture during rearing/fattening period – evaluate impact on negative and positive welfare indicators
		3.1.2 Larger groups of finishing pigs on deep bedding with or without access to outdoors in comparison to fully outdoor production – behaviour, welfare, and aspects of social sustainability in alternative systems
		3.1.3 Occasional access to an outdoor area during the rearing/fattening period
		3.1.4 Occasional access (1 h twice per week) to an enriched pen with fresh air
		3.1.5 Regular access to preferred environmental enrichment materials in indoor pens
	3.2 Alternative systems to cages from insemination to confirmation of pregnancy 4 weeks later	3.2.1 Improved housing conditions for sows
		3.2.2 Group housing of sows during mating and gestation – effects of group size and mixing/introduction strategies
	3.3 Alternative systems to cages during farrowing and lactation	3.3.1 Temporary crating indoor during lactation and farrowing
		3.3.2 Outdoor access during farrowing and lactation



# Case studies: Poultry (6), Rabbits (2)

Species	Topic	Study
4. Poultry	4.1 Improved indoor conditions for broilers and laying hens	4.1.1 Cage free indoor systems for laying hens
		4.1.2 Evaluation of the use of biochar in poultry litter for ammonia reduction, the use of alternative protein sources in broiler feed, and reduced stocking density in broilers
	4.2 Environmental enrichment for broilers and guinea fowls	4.2.1 Insect larvae as environmental enrichment
		4.2.2 Use of different types of environmental enrichment in guinea fowl
	4.3 Slower-growing broilers	4.3.1 Use of broiler hybrids characterized by slow or intermediate growth rate in free-range systems
4.4 Broiler welfare and sustainability	4.4.1 Integrating broiler welfare into the United Nations Sustainable Development Goals	
5. Rabbits	5.1 Cage-free keeping of rabbits	5.1.1 Collective park systems (cage free) for reproducing does and growing rabbits
		5.1.2 3Rs – rethink rural rabbits: An innovative free-range model to protect rabbit biodiversity, promote sustainability and animal welfare, ensure resilience and valorise an Italian socio-cultural heritage





# Thank you for your attention!

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