



## SUSTAINABLE LAMB MEAT PRODUCTION FOR EUROPE



ERA-NET SusAn Funded Project  
Supporting  
"Holistic Production to Reduce the Ecological Footprint of Meat"



EUROPEAN RESEARCH AREA ON SUSTAINABLE ANIMAL PRODUCTION

<b>Country</b>	<b>Breed</b>	<b>Breeding System</b>
<b>Germany</b>	Texel-Merino-Swifter-Berrichon (TMSB)	Extensive
	Merino-Charolais-Blackhead (MCB)	Extensive
<b>Spain</b>	Gallega	Extensive
	Inra 401	Intensive
	Castellana	Intensive
<b>Slovenia</b>	Jezersko-Solčava (JSO)	Extensive
<b>Italia</b>	Biellese	Intensive
	Sambucana	Extensive
<b>Portugal</b>	Churra-Galega-Bragançana (CGB)	Intensive
	Bordaleira entre Douro e Minho (BEDM)	Extensive
<b>Turkey</b>	Akkaraman	Extensive + Intensive
	Karya	Extensive + Intensive
	Kıvırcık	Extensive

BREEDS AND BREEDING SYSTEMS EMPLOYED IN EACH COUNTRY.

# SUSTAINABILITY FACTORS

The project used Life Cycle Assessment (LCA)

Life Cycle Costing (LCC)

Land Use Assessment (LANCA)

Biodiversity Assessment

as the universal reference baseline to evaluate the ecological sustainability of Intensive (feedlot) and Extensive (grazing) lamb meat production systems

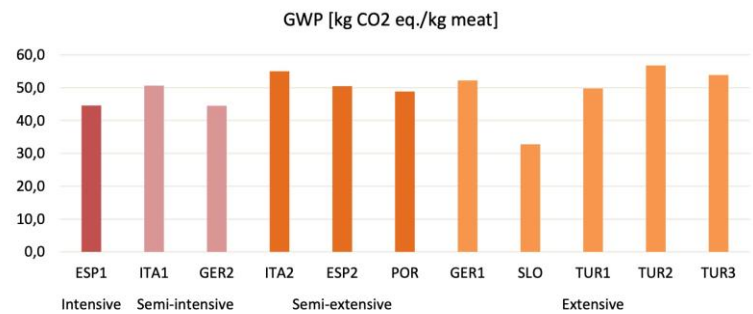


Figure 4 Overall results of GWP assessment for all case studies categorized in the respective farm management form

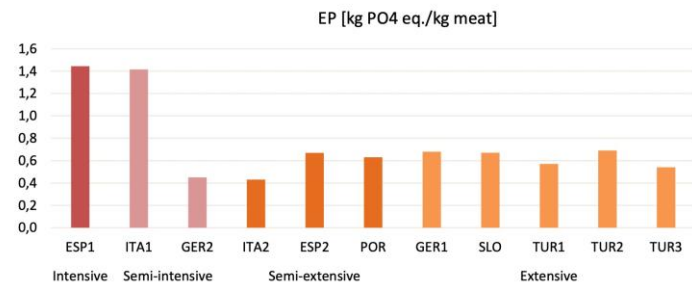


Figure 5 Overall results of EP assessment for all case studies categorized in the respective farm management form

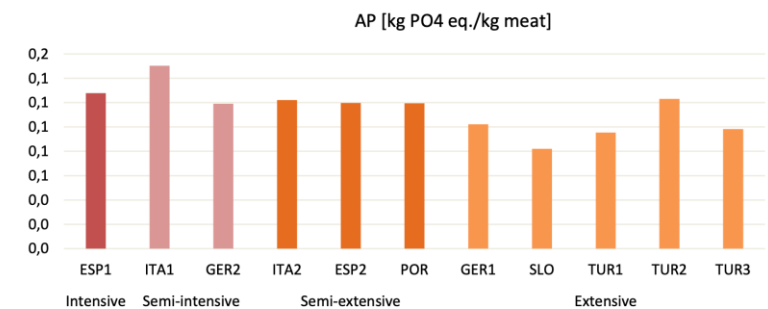


Figure 6 Overall results of AP assessment for all case studies categorized in the respective farm management form

- Global Warming Potential (GWP), the more intensive a farm is managed, the less CO2 equivalents are emitted per kg product
- Eutrophication Potential (EP), the most intensive farms had the highest impact on eutrophication, with a small grazing area per sheep
- Acidification Potential (AP), also being a local impact factor - showed a similar profile as the EP

# Biodiversity Assessment:

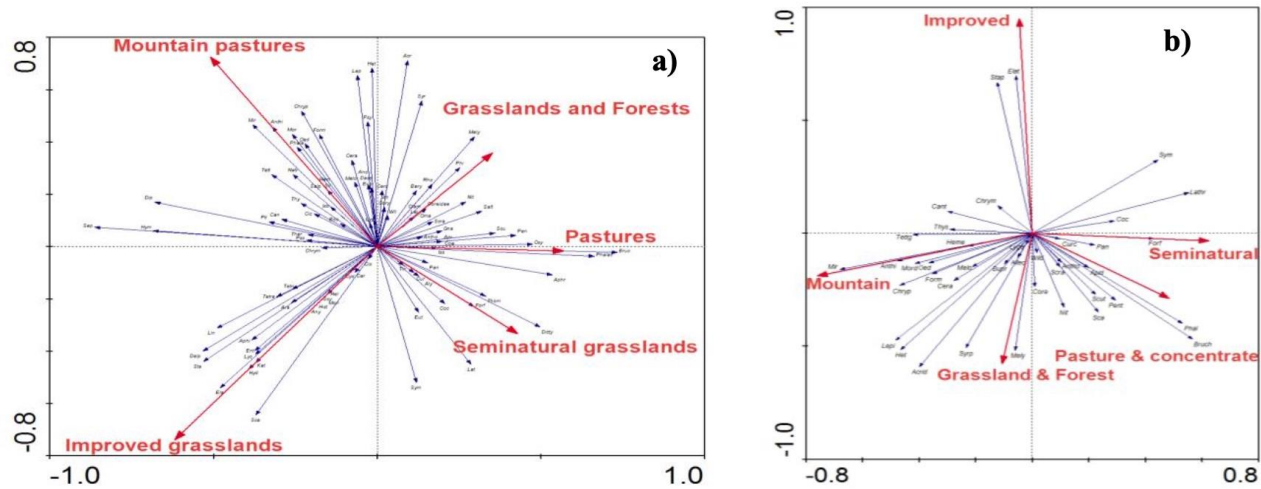
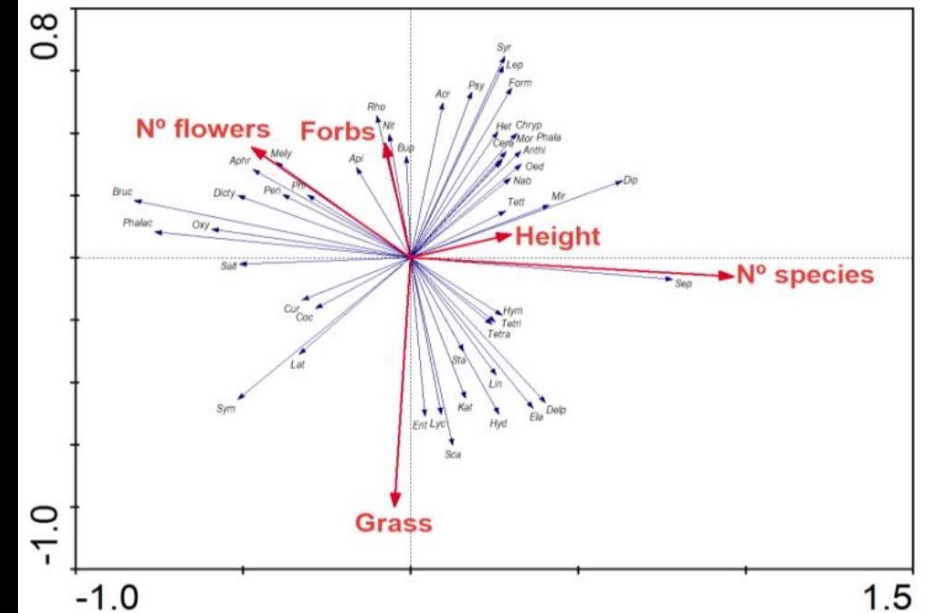


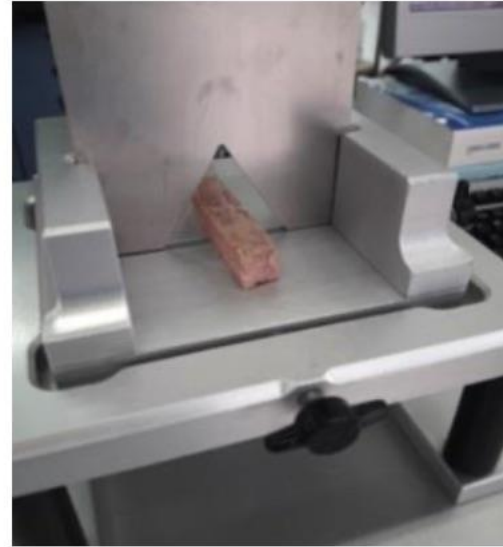
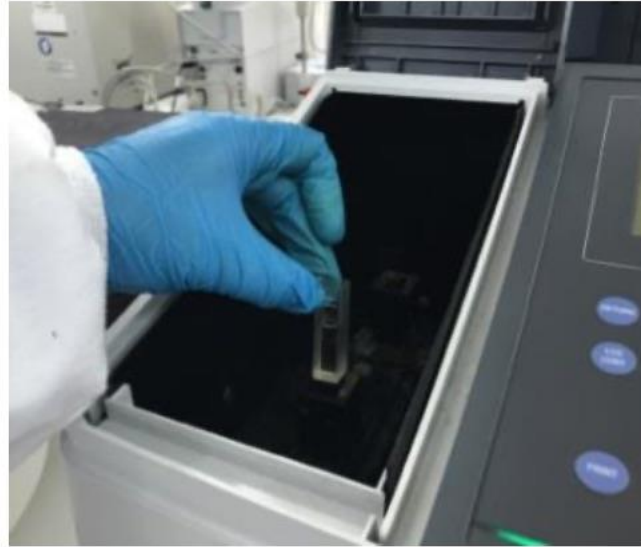
Figure 3. Multivariate analysis (RDA) biplots showing the relationship between the arthropod fauna communities (blue arrows for each arthropod taxa with its name abbreviated) and different types of pastures (red arrows). Pastures refer to sheep farms where sheep graze in the pasture lands but they are also supplemented. The analyses were performed for the whole arthropod community (a) and for the community of pollinators in particular (b).



# Consideration

- Globally, the sheep systems with **lower degree** of intensification favored **higher biodiversity** of the fauna and more complex communities compared to more intensive ones.
- **Sheep grazing** affects to the local biodiversity mostly indirectly due to their effect on the vegetation and the environmental conditions in the pasture lands.
- The **most suitable pastures** for the global arthropod and pollinators community would be those ones associated to sheep management strategies which contribute to maintain heterogeneous swards with balanced vegetation composition

# MEAT QUALITY

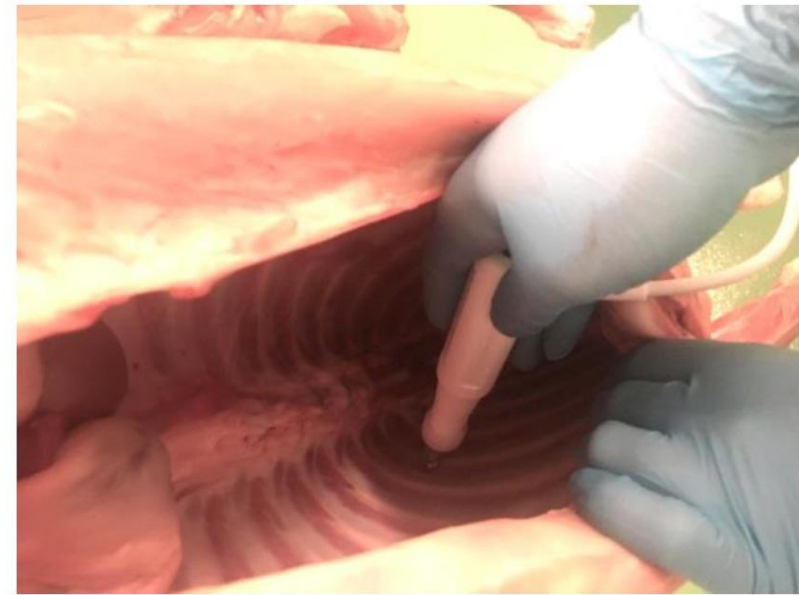


# Consideration

- Mean contents of protein, fat and ashes in the meat were highly dependent on the farm, however in general the extensive production systems provided higher fat and protein contents



# MEAT SAFETY



# Animal welfare



	PC1	PC2
Positive	Bright, inquisitive, sociable, content, vigorous, assertive, calm, active, wary, alert, listless, subdued, relaxed, tense, fearful	Agitated, tense, aggressive, frustrated, wary, active, sociable, defensive, bright, inquisitive, fearful, subdued, alert
Negative	Physically uncomfortable, defensive, frustrated, aggressive, agitated, apathetic	Relaxed, calm, assertive, listless, physically uncomfortable, apathetic

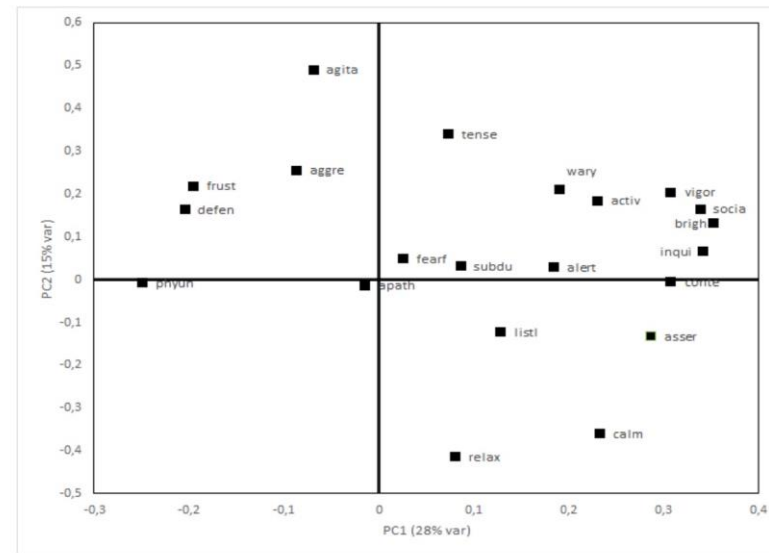


Figure 5. PCA plot with the QBA indicators taking into account the results from all the farms.

# Chronic stress

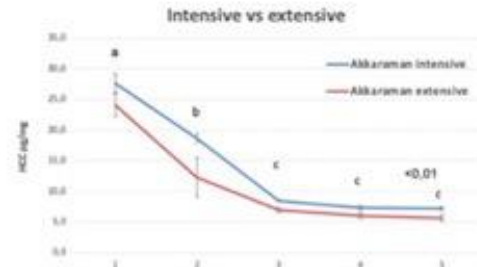


Fig.3a

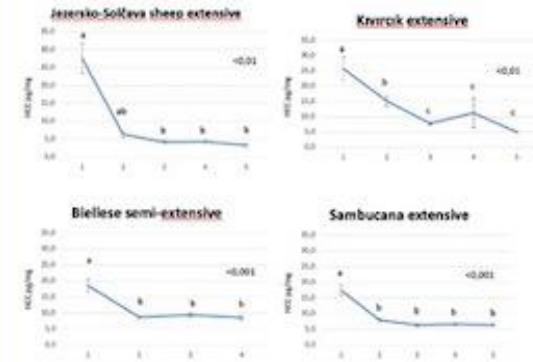


Fig.3b

# Dissemination

- Booklet
- Multilanguage website (<http://www.ecolamb.eu/>)
- Editor of two special issues in Small Ruminant Research (Lamb production in Europe) and in Frontiers in Veterinary Medicine (One Health: The Parameters of an Eco-Sustainable Farm)
- 4 scientific articles published or accepted
- 2 scientific articles in revision
- 3 scientific articles in preparation for submission
- 16 meeting communications or posters
- High school students meetings



## Select a Country



Eng



Italy  
(Under Construction)



Germany  
(Under Construction)



Portugal  
(Under Construction)



Slovenia

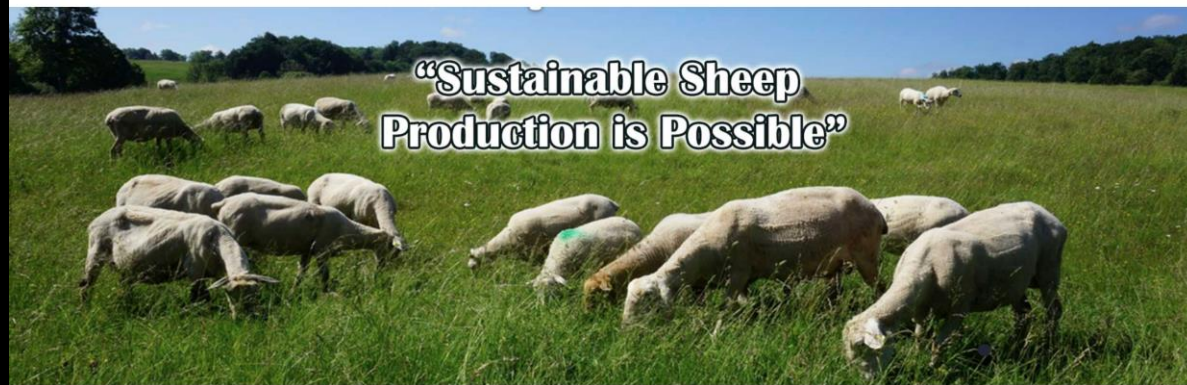


Spain  
(Under Construction)



Turkey  
(Under construction)

- Home
- Project
- Partners
- Farms
- Info. Dissemination
- Visuals
- Meetings
- Contact



"Sustainable Sheep  
Production is Possible"

Submit your abstract Submit your manuscript Participate / Refer a colleague

Overview Articles 6 Authors 42 Impact

### Articles

- Farmer and Veterinary Practices and Opinions Related to Fertility Testing and Pregnancy Diagnosis of UK Dairy Cows**  
Thomas Tzelos, Natalie L. Howes, Cristina L. Esteves, Martin P. Howes, Tim J. Byrne, Alastair I. Macrae and Francesc X. Donadeu  
Original Research Dairy cow farming plays an important role in the UK and worldwide economies. Significant challenges are currently being faced regarding sustainability of the dairy industry. Dairy cow fertility remains an important issue limiting herd...  
Published on 25 September 2020  
Front. Vet. Sci. doi: 10.3389/fvets.2020.564209  
3,844 total views
- Relating Lying Behavior With Climate, Body Condition Score, and Milk Production in Dairy Cows**  
Daniela Lovarelli, Alberto Tamburini, Gabriele Mattachini, Maddalena Zucali, Elisabetta Riva, Giorgio Provololo and Marcello Guarino  
Original Research Attention on animal behavior and welfare has been increasing. Scientific knowledge about the effect of behavior and welfare on animal production is improved and made clear the need of improving their living conditions. Among the variables to monitor...  
Published on 05 November 2020  
Front. Vet. Sci. doi: 10.3389/fvets.2020.565415

### Topic Editors

- Mario Baratta**  
University of Turin, Turin, Italy  
28 publications
- Pietro Celli**  
Adriano Comensoli, France  
187 publications
- Gianfranco Gabai**  
University of Padua, Padua, Italy  
74 publications

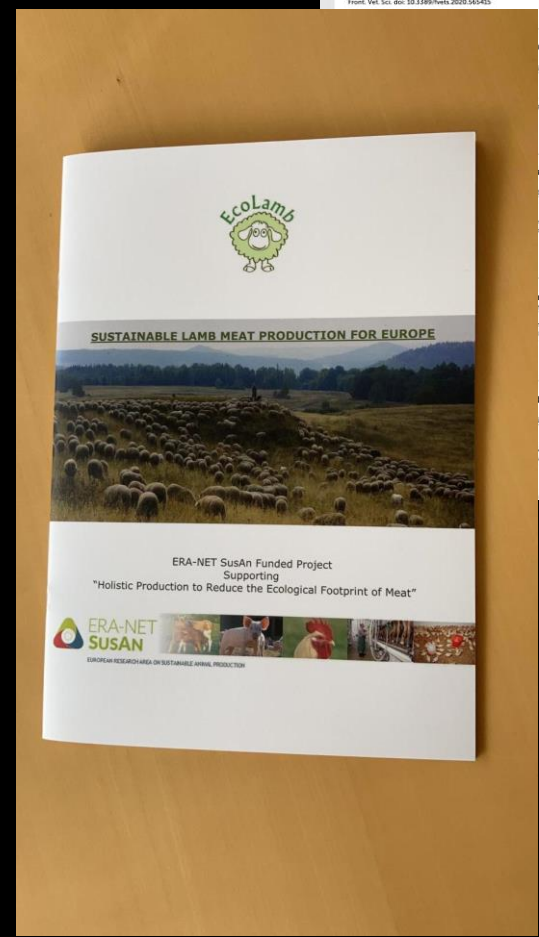
### Submission Deadlines

30 June 2020 Manuscript  
30 September 2020 Manuscript Extension

### Participating Journals

Manuscripts can be submitted to this Research Topic via the following journals:

Frontiers in Veterinary Science  
Animal Nutrition and Metabolism  
Animal Behavior and Welfare



EcoLamb

**SUSTAINABLE LAMB MEAT PRODUCTION FOR EUROPE**

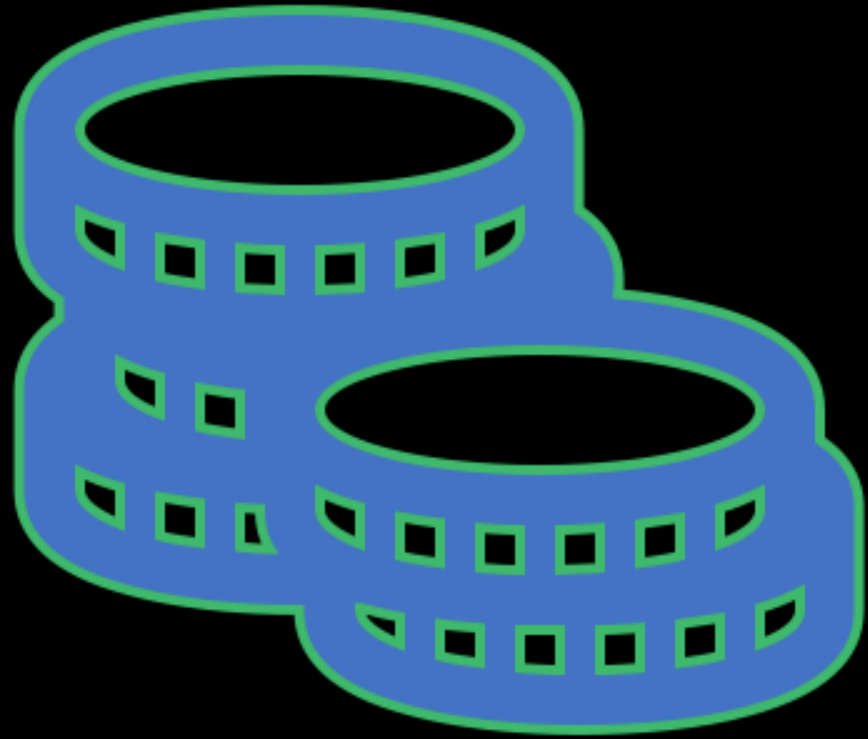
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ERA-NET SUSAN  
EUROPEAN RESEARCH AREA ON SUSTAINABLE ANIMAL PRODUCTION

Which future research needs at the end of this project that would significantly contribute to more sustainable animal production systems?

**biodiversity**





**Economic role**





**eco-pastoral  
value**

# Human settlement



**Product quality**



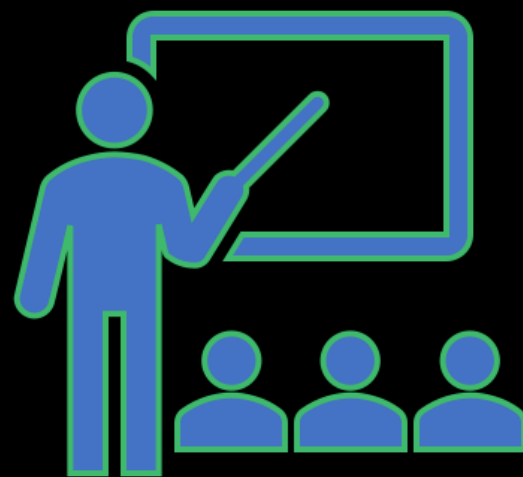


**Food safety**

# **Eco- sustainability**



**education**



Thank for the attention



# Acute stress

