



ERA-NET **SUSAN**



**FreeWalk** – Develop economic sound  
free walk farming systems elevating animal  
welfare, health and manure quality, while  
being appreciated by society

**Marija Klopčič, Abele Kuipers & Paul Galama**



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**EUROPEAN RESEARCH AREA ON SUSTAINABLE ANIMAL PRODUCTION**



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# Project description

- **Research question:** how to adapt housing of cattle to a more natural system?
- **Aim of this project:** to further develop economic sound Free Walk cattle farming systems, which improve animal welfare and soil structure, utilize waste products and have public support.
- As **innovative housing systems**, the compost bedded pack barn and the artificial floor system (Cow garden) are applied with a completely free walking and lying area and are compared with cubicle barns for reference.
- Research is based on:
  - 22 Freewalk Case farms & 22 Cubicle Reference farms in 6 European countries (SE, NL, DE, AT, IT, SI)
  - 2 farms with artificial floor / High Welfare Floor (NL)
  - Research units for detailed research (Dairy Campus (NL) & Research farm Logatec (SI))
- Measurements during 6 farm visits:
  - climate of bedding and barn
  - farm outlay
  - dry matter of bedding
  - cow welfare
  - milk (meat) quality
  - NPC cycle on farm



# WP's

- WP1: Description and organization of case and reference farms
- WP 2: Inventory and characteristics of waste materials
- WP 3: Effect of housing system on animal welfare, health and product quality
  - *Study 1: Animal health, longevity and welfare*
  - *Study 2: Detailed research on animal welfare*
  - *Study 3: Antibiotic use*
  - *Study 4: Milk quality*
- WP 4: Effect of composted bedding on NPC-balances and soil structure
- WP 5: Socio-economic aspects
- WP 6: Systems approach and economic evaluation
- WP 7: Communication and dissemination







# Preliminary results

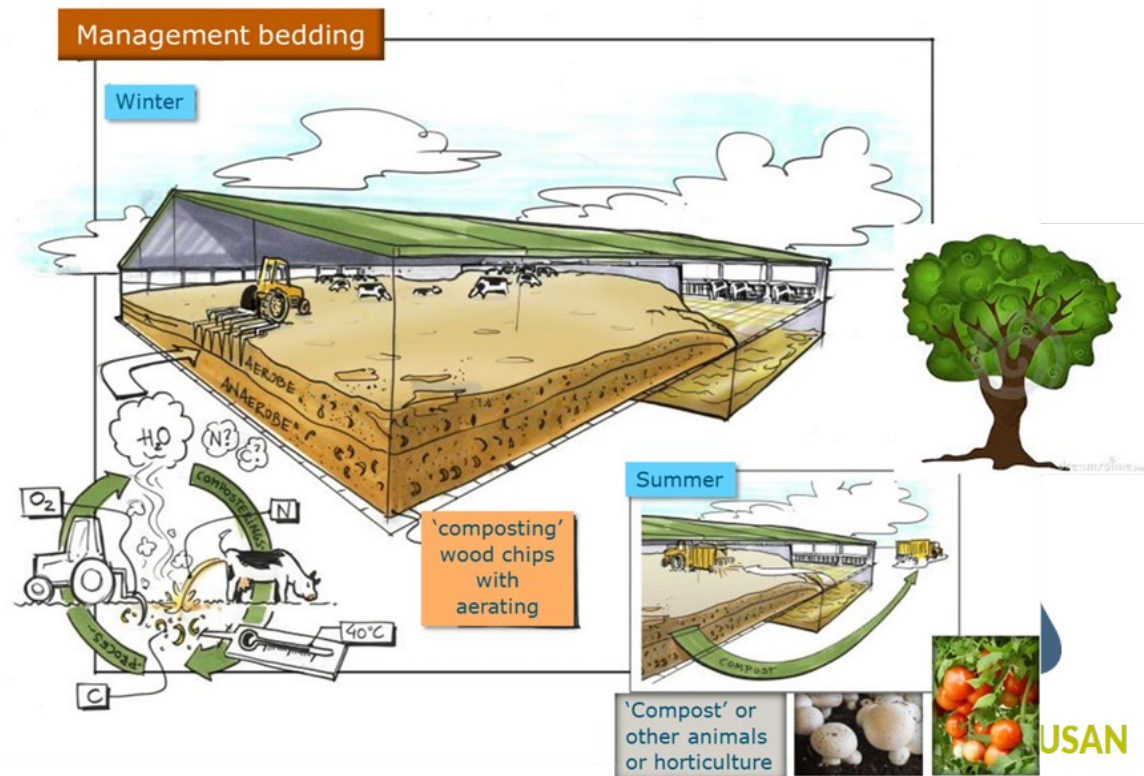
- Temperature of the composting bedding material varies a lot from farm to farm.
  - A temperature from 30 to 40 degrees is considered optimal.
  - Especially (too) low temperatures were found in the winter months.
- Dry matter content is a key parameter for a successful composting process.
  - A water balance model is set-up.
- Cow welfare measurements were done on the 44 farms, using mainly animal-based measures, from an adaptation of the Welfare Quality® Protocol.
  - Farms were visited during winter 2017 and summer 2018, where 4.036 dairy cows were scored by the same observer.
  - The results showed a large influence by the housing system on animal-based measures and comfort around resting.
- Antibiotics use was assessed in a sample of 24 Netherlands' FreeWalk herds
  - Use of antibiotics on Free Ealk farms was significantly less than in a group of 80 Cubicle housed herds.
  - Follow-up research intends to find out if this is a purely housing effect or caused by differences in farmers' attitude (or both).





# Preliminary results

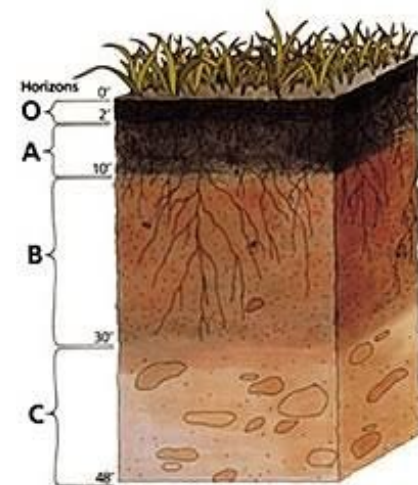
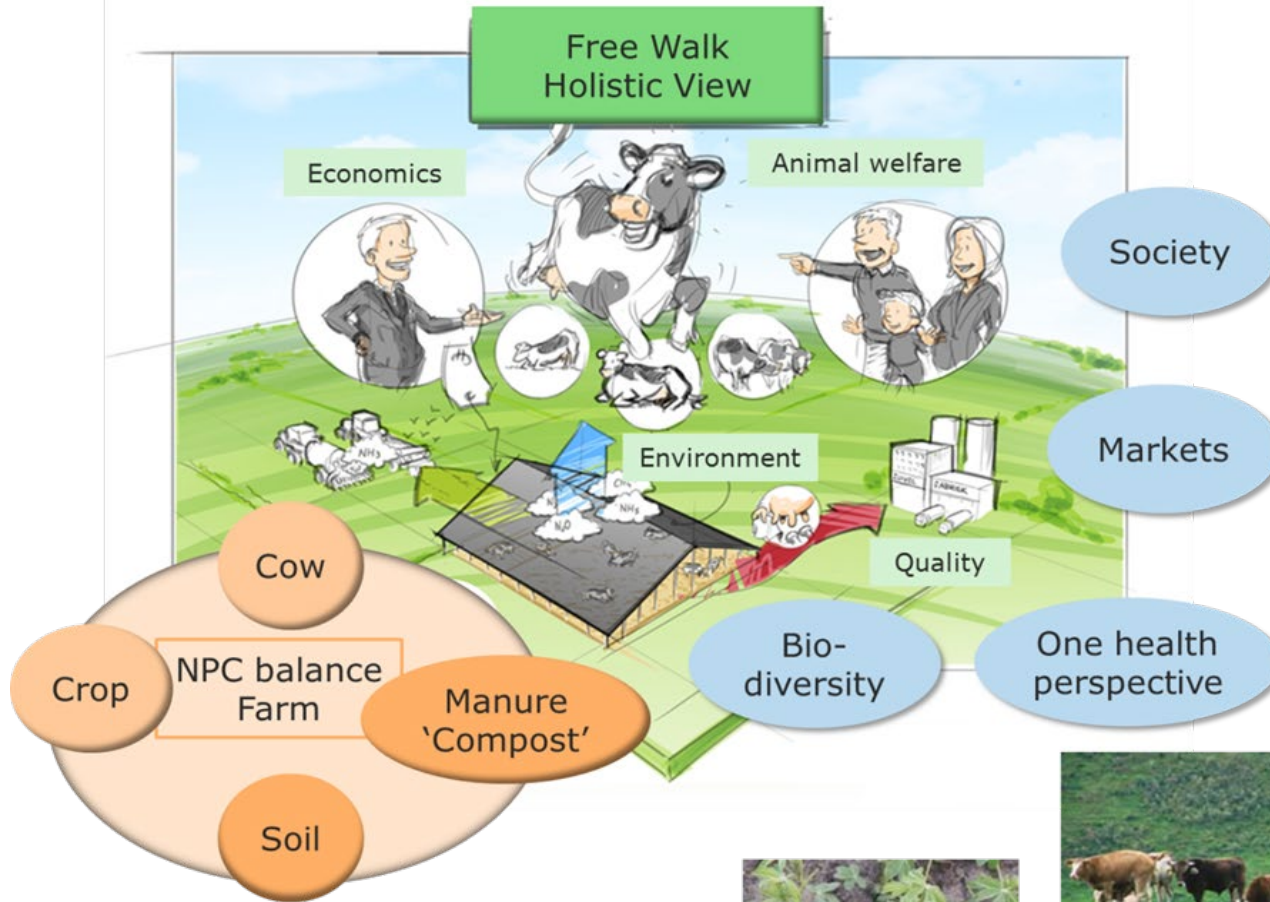
- The bacteria flora measurements in the composting bedding of FreeWalk barns asks for more insight.
  - Additional samples will be taken on the case farms and analysed in time to come. In this context mastitis is a key concern.
- Bedding management is complex; winter and summer time ask for a different approach.



# Contribution to SusAn research objectives:

*Which is the contribution of your research to SusAn objectives*

- FreeWalk is an integrated holistic project



# Research Impact on the 3 pillars of sustainability: *Does the project adequately address the different pillars and how these contribute to the aim of the project?*

- *Goal of project is:*  
to further develop economic sound free walk cattle farming systems, which improve animal welfare and soil structure, utilize waste products and have public support.
- *Environment:*
  - WP2 – Climate in barn, management of bedding
  - WP3 – Quality of product and bacteria flora in bedding / barn
  - WP4: - NPC cycle of farm
- *Society:*
  - WP5 - Survey in 8 countries to question appreciation of 4 housing systems and grazing or not; Choice experiments; willingness to pay
  - WP5 – Multifunctionality - utilizing bedding for various agricultural activities
- *Economics:*
  - WP6 – Modelling economics of practices applied





# Research Impact on the 3 pillars of sustainability:

*How relevant are the links made between the pillars?*

- WP6:

Link between Economics, Environment and Society will be studied by a Multi-Criteria-Analysis



# Transnational collaboration:

*What is the added value of transnational collaboration?*

- together with national initiatives the FreeWalk allows a group of scientists to focus for three years realizing the aims set forward in this project
- interaction is wider than only in Europe – partners from Israel and USA
- Added value of transnational collaboration:
  - achieved through integration of the various fields of expertise from different institutions and companies, and
  - know-how exchange of experiences in the field contribute to implementation of such farming systems world wide



# Transnational collaboration:

*Is the transnational collaboration beneficial for broad implementation of the results?*

- International cooperation with Israel, Kentucky, Brazil
- Different housing system monitored – we learn from each other
- Structural relations and cooperation with other EU projects: OptiBarn, Livestock Precision Farming, EuroDairy project, 2-Org-Cows, BIOSMART ...
- Opinions on housing systems and consumer relations are arranged by sub-contracting (Market Research Agencies)



# Multi actor approach:

*Is there a strategy to involve relevant stakeholders?*

- To study complex sustainable housing systems:
  - We surely need the input of stakeholders by:
    - ✓ Contact with companies (housing, cow toilet, ...), researchers, advisers
    - ✓ Consumer survey, focus groups
    - ✓ Final FreeWalk project stakeholders meeting





# Multi actor approach:

*Are research outcomes validated under practical conditions along the whole value added chain?*

- A wide spectrum partners, covering the whole cattle chain are involved
- Research outcomes come from 44 pilot farms in 6 countries and two experimental farms
- Perceptions from 4.000 consumers in 8 countries
- Discussion by farmers and expert groups in regions
- Discussion by 6 Focus groups of consumers (DE, AT, SI)
- Validation on congresses and seminars (EAAP, ADSA, IFMA)
- Validation by Modeling



# Cross-scale approach:

*In how far does it make sense in the particular research project to target the different levels?*

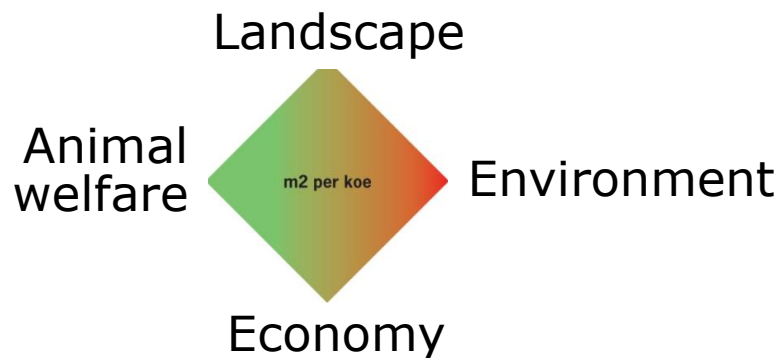
- FreeWalk topics animal welfare, environment and product quality are key topics in both the farming community and the society;



# Cross-scale approach:

*How relevant are the interactions seen between the levels?*

- Global level: Know-how exchange at international conferences
- European level: Effect on animal welfare, environmental and SKAL regulations
- Regional level: Data collection and Output: Society appreciation of FreeWalk housing systems and products
- National level – Output: NPC balances; overall economic benefit
- Farm and herd level: Herd data collection: production, welfare & health, manure quality, soil structure; Output: NPC balances, herd and economic performance



# Dissemination and communication strategy:

*Is there strategy for exploiting the potential of the projects results?*

- Project website: [www.freewalk.eu](http://www.freewalk.eu)
- Video about different housing systems
- TV reportage (SI), articles, leaflets, posters, conference/seminars presentations
- Exchange study visit of farmers, advisers, researchers, students (future farm successors)
- Farm open days / Discussion groups
- Seminars, Congresses (EAAP, ADSA, IFMA, ...)
- Study days (Austria, Germany, Netherlands, Sweden)









# Dissemination and communication strategy:

*Do you disseminate the projects results via Open Data?*

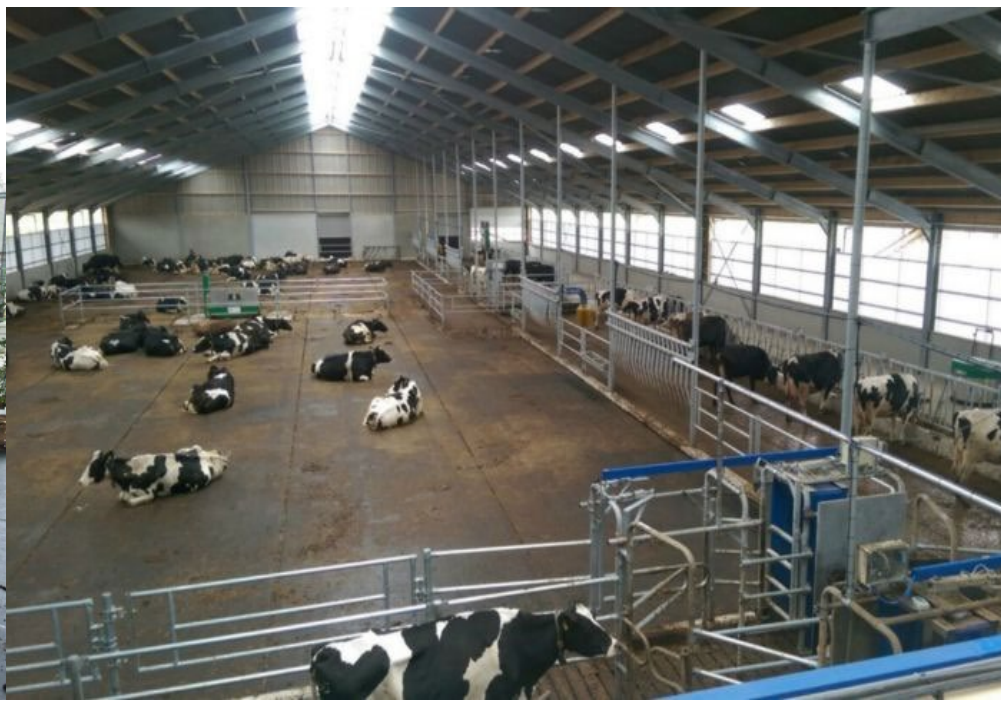
- We communicate without restrictions
- We take care of privacy of individual farm data















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