BovINE
BEEF INNOVATION NETWORK EUROPE

GP&RI Exchange

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Environmental Sustainability Good Practices

Presented by Ms. Paola Eguinoa & Mr. Kevin Kinsella

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Spanish Good Practice

Presented by Ms. Paola Eguinoa (INTIA)

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Navarra payment for sustainable farm systems

Thematic area/priority need:

Environmental sustainability / Reward schemes for beef farmers meeting environmental deliverables

Description:

The Rural Development Programme of Navarre 2014-2020, includes measures that promote Sustainable Livestock Systems, by means of grazing and extensification.

This aid is granted to farms in Navarre which base their livestock feed on the use of forage areas by grazing. This agri-environmental measure is based on the application of premiums per hectare to compensate for the increase in costs and provide an incentive for livestock farmers to introduce the variable of environmental sustainability into their management models by means of extensive grazing. The basic objective is to maintain sustainable livestock production that contributes to the respect and conservation of biological diversity in pastures.

GP implemented at farms where cattle graze in extensive land. The cattle breeds eligible for this aid are autochthonous and/or endangered breeds. These are farms where a large part of the feed comes from natural grazing resources and in winter they are supplemented mainly with their own fodder.

Most important outcome/benefit:

Receive income support for beef cattle farmers who manage their animals in more sustainable systems and provide positive externalities to the environment.

Seek a balance between national/regional public policies and the European trend.

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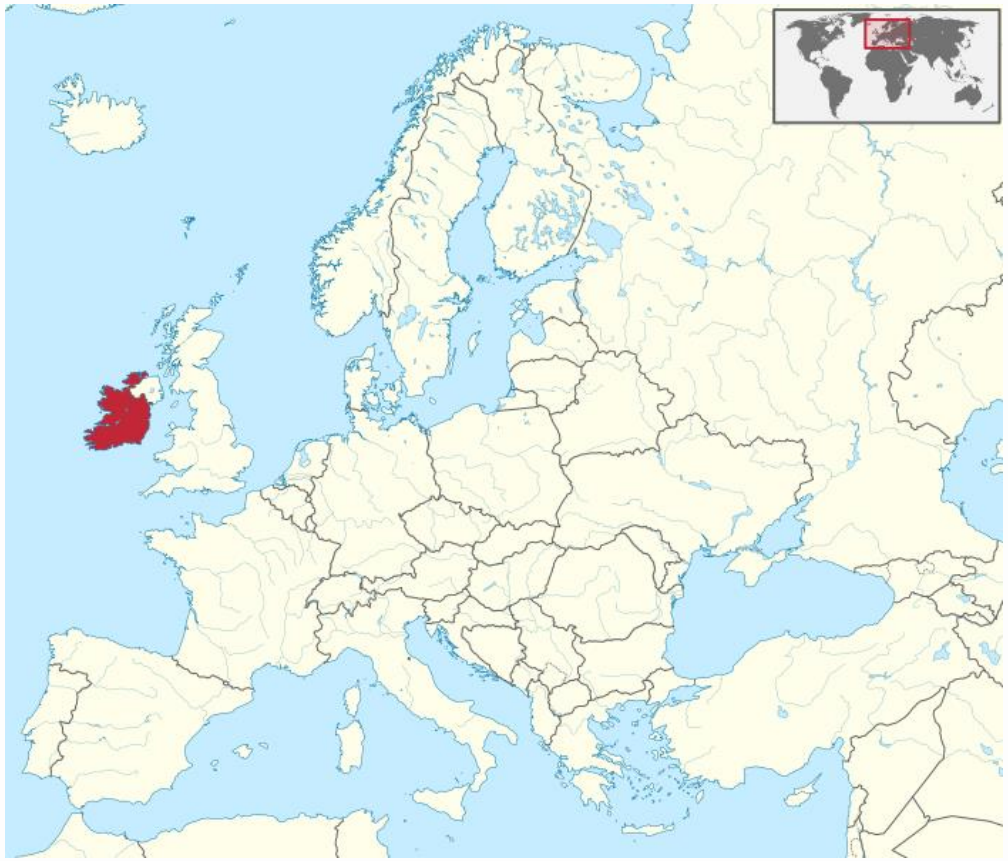
This good practice was implemented by the Government of Navarra in 2014 for the 2014-2020 RDP period and it is currently continuing.

YEAR	FARMS	Surface (ha)	BOVINE LU	TOTAL (€)	FEADER PAYMENTS
2016	410	25.121,46	17.592,04	572.321,24	343.392,71
2017	848	36.050,17	27.348,64	960.129,38	576.077,66
2018	859	36.632,97	28.051,48	953.802,63	572.281,57
2019	383	23.468,50	12.432,00	652.938,75	391.763,27
2020	377	22.481,82	12.212,00	635.950,44	381.570,28

Irish Good Practice



Presented by Mr. Kevin Kinsella
(AgSpace Ltd. and the Irish Farmers'Association)

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Teagasc Signpost Programme

- Teagasc – Irish Agricultural and Food Development Authority
- Signpost Programme – campaign to lead climate change by farmers
- Farming/Agric is big in Ireland – accounts for 1/3 of GHG emissions
- Farmers – part of the solution
- Elements of Signpost – Demonstration farms and advisory campaign
- Objectives
  - Move to sustainable farming
  - Reduce agriculture emissions
  - Reduce ammonia emissions
  - Improve water quality and biodiversity
  - Reduce costs and increase profit

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Teagasc Signpost Programme

- Examine and Measure Carbon Sequestration on demo farms
  - Deep soil samples (est. baseline) and monitor change
  - Carbon flux towers – carbon exchange at eco system level
- Establish the data – financial and emissions
- So as C data can be taken into account by EPA in Nat GHG inventory
- Practical good practices – tree planting and side trimming hedges
- https://youtu.be/nZpTJS07e80

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Environmental Sustainability Research Innovations

Presented by Ms. Karen Goossens (ILVO) & Josselin Andurand (IDELE)

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Consumer pays/HVE label

Thematic area: Environmental sustainability

Topic 6.3: Rewarding systems for environmental deliverables- **Research Innovation**

Contact person: Josselin.Andurand@idele.fr, Riet.Desmet@ilvo.vlaanderen.be, & Karen.Goossens@ilvo.vlaanderen.be

Haute Valeur Environnemental (HVE label)

- Highest level of environmental certification for farms from the French agriculture Ministry.
- Label to the product to set it apart from other not certified products
- Communication and promotion
- Collective catering, access to new markets
- > 14000 certified farms on January 1st 2021 (2.3% of French surface)

MINISTÈRE DE L'AGRICULTURE ET DE L'ALIMENTATION

Liberté
Égalité
Fraternité

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Consumer pays/HVE label

The "High Environmental Value" (HVE) label is the mark of agroecology for all territories and all agricultural production.
It certifies areas and farms that work on 4 thematic areas:

Conservation of biodiversity

Water resource management

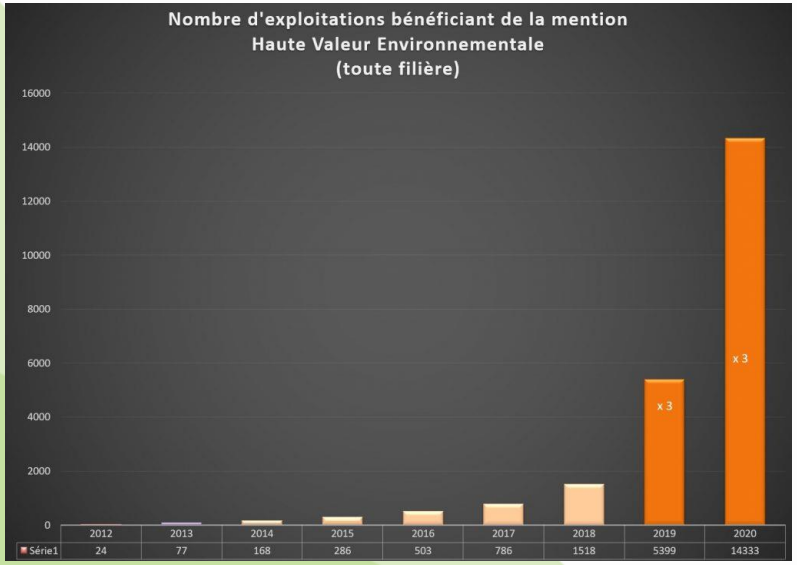
Fertilisation management

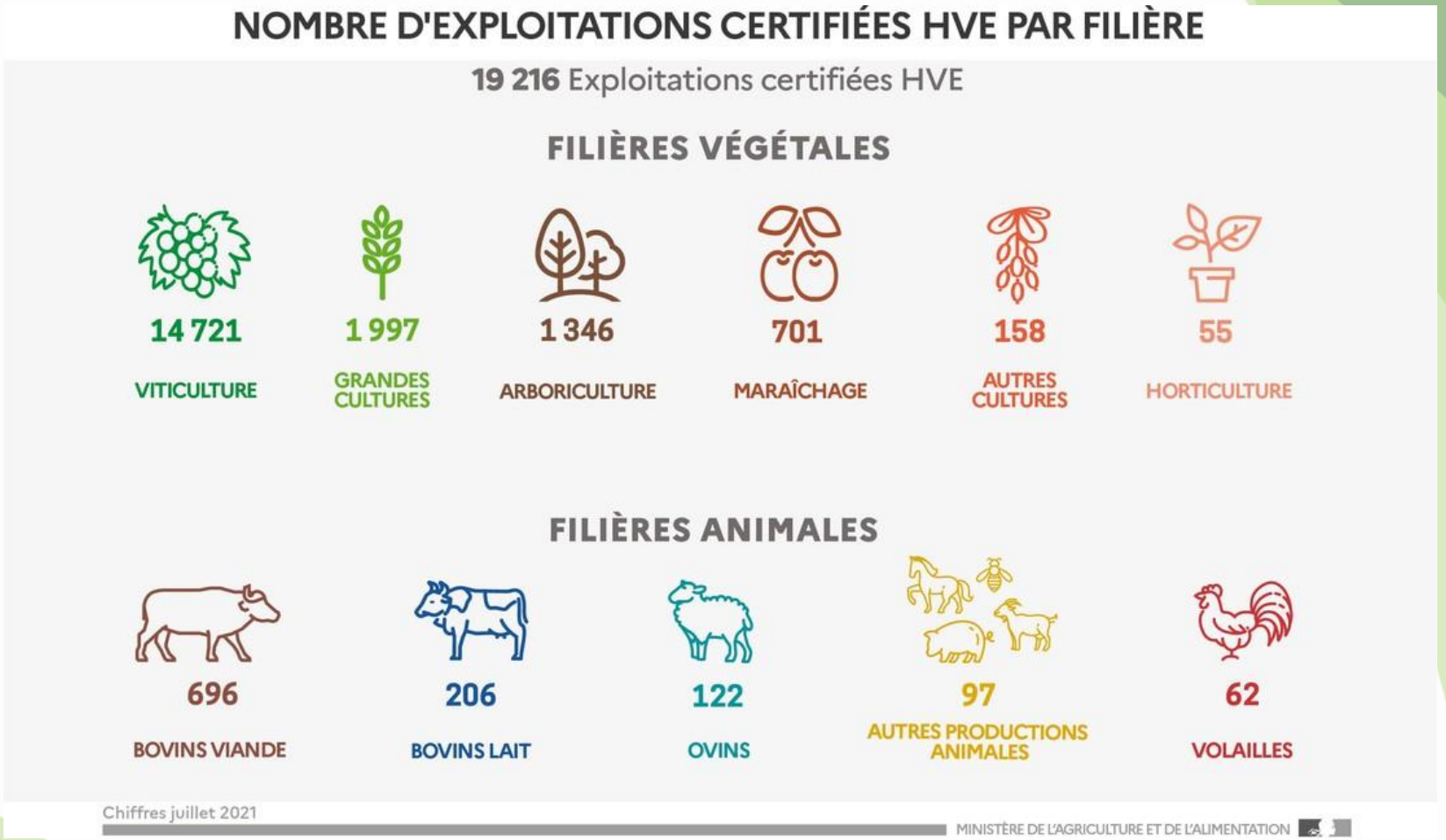
Plant and crop protection strategy

Pictures: Pixabay

the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Consumer pays/HVE label





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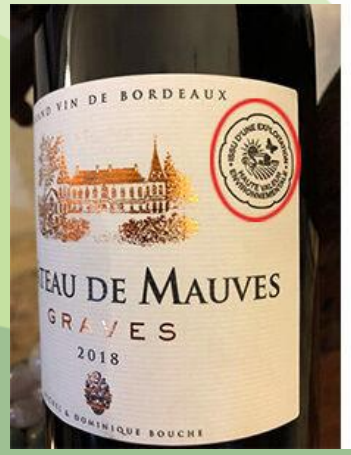
Consumer pays/HVE label

Economic trade-offs:

- Risk: Land productivity: decreased yield
- Products with HVE label are sold at higher price in retail
- Increase in subsidies during conversion period to HVE
- Extra compensations from the Covid recovery plan



https://youtu.be/BUEZzuaIUZY

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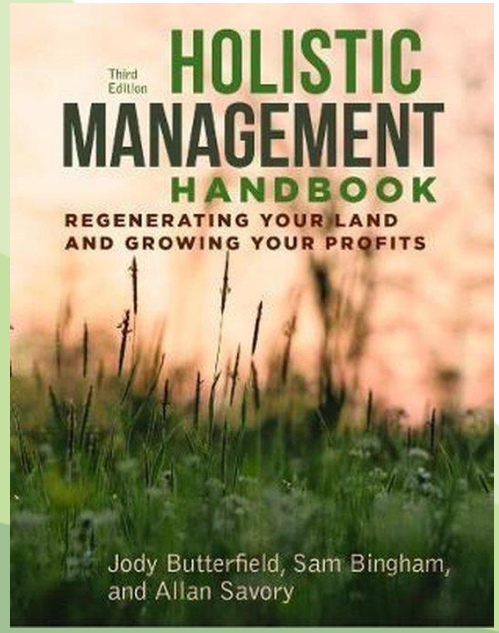
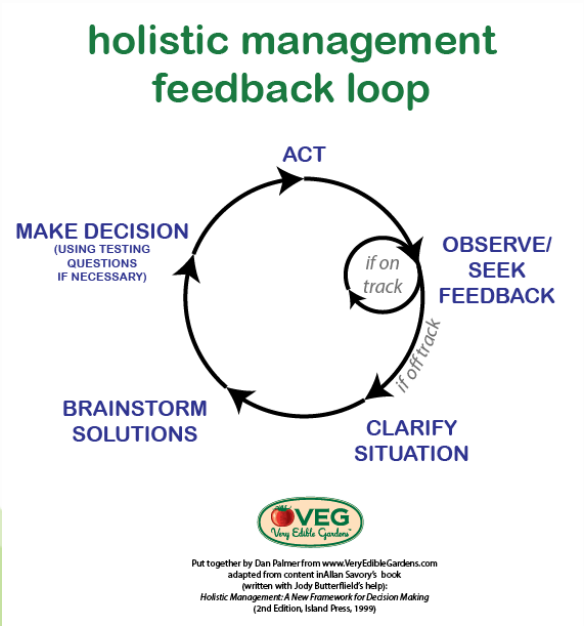
Holistic management

Thematic area: Environmental sustainability

Topic 6.4: Carbon sequestration - **Research Innovation**

Contact person: Riet.Desmet@ilvo.vlaanderen.be, & Karen.Goossens@ilvo.vlaanderen.be





What?

- Decision making framework that emphasizes the interdependence of environmental, economic, and social wellbeing.
- Focus on relations between resources (land, animals, water, soil,…), people and financial outcomes.
- Takes into account the whole ecosystem function to be maintained

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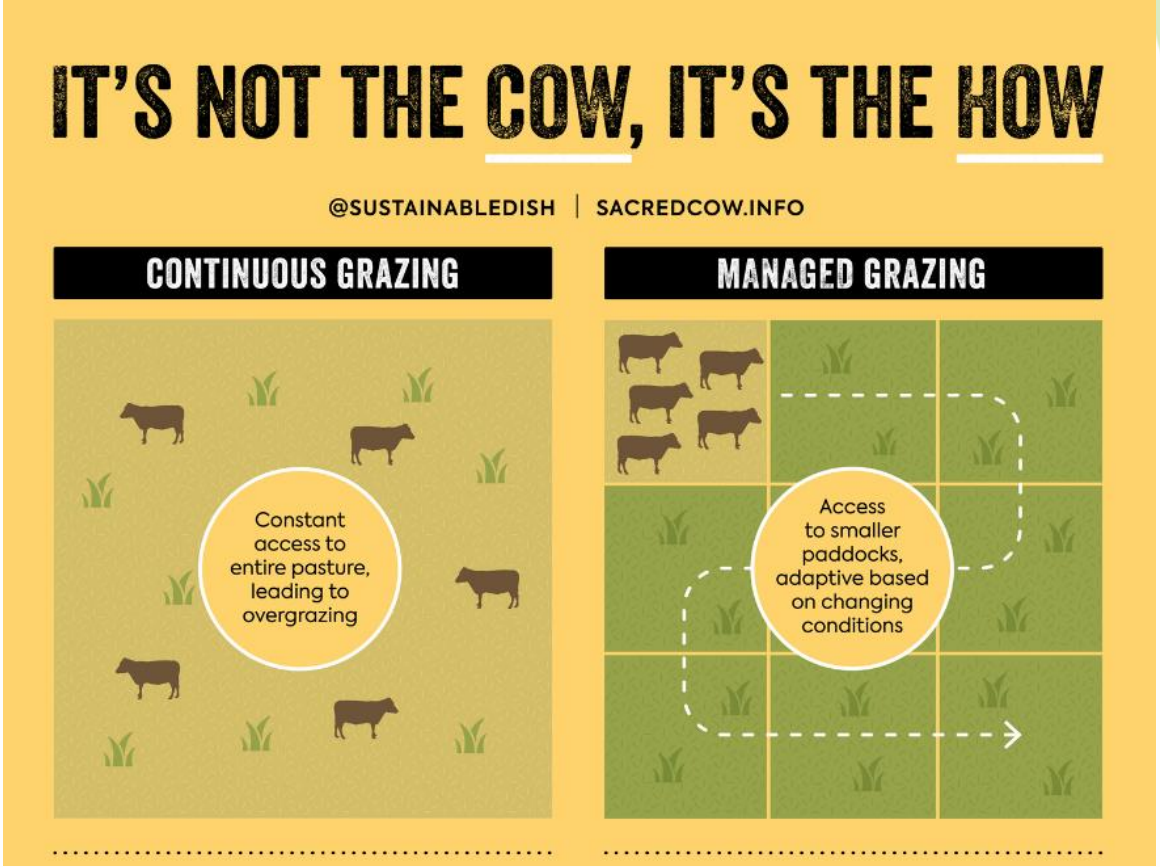
Holistic management

Description: rotational, high-intensity short duration razing altered by long recovery periods

- Grazing for short periods on high densities
- Planning grassland recovery
- Adjusting stock numbers to match forage biomass

Consequences:

- Reduction in chemical fertilizer use
- Evolution to native, multispecies grasslands
- Recycling soil nutriënts



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Holistic management

Environmental Sustainability

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Beneficial for farm profitability and
net economic returns:
Increase (forage and animal) productivity
High plant biomass and quality

Socioeconomic Resilience

Animal Health & Welfare

Less calf mortality
Healthier animals
Lower infectious pressure: fewer parasites
Mitigation of BSE impact in 2009

Production Efficiency & Meat Quality

Environmental Sustainability

Increase animal productivity
More animals per farm

Better soil carbon return and maintenance
Improvement of soil health (microbial life)
Adaptation to climate change
Less nutrient leaching
Adaptation to climate change
Beter water management

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Socio-Economic Resilience Good Practices

Presented by Mr. José Pais & Mr. Dirk Audenaert

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Portuguese Good Practice

Presented by Mr. José Pais (ACBM/Promert)

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

EU Quality Schemes

THEMATIC AREA | Socioeconomic Resilience

TOPIC | Initiatives to improve beef image and to break with the current trend of consumption decline

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EU Quality Schemes

The main quality labels are:
Protected Designation of Origin (PDO),
Protected Geographical Indication (PGI) and an EU organic logo

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The example of Mertolenga PDO beef

- 1994 – PDO label approved by EU
- BSE in the early 90s
- Beef consumption dropped drastically and became residual
- PDO labels were new and had an excellent consumer acceptance
- PDO labels have been a valuable asset for nearly thirty years

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Marca de Certificação
Denominação de Origem
Carne de Bovino de Raça Mertolenga
Entidade Certificadora
Associação de Criadores de Bovinos Mertolengos
Comercializada por:
Mertocar
Sociedade de Produtores de Carne de Qualidade, Lda.
Moinho da Mitra - Valverde
Apartado 466 - 7005 Évora Codex
Telef.:(066) 711222 - Fax:(066) 711223
nº de série: 0318

Associação de Criadores de Bovinos Mertolengos
(066) 711222/3
Série: A
Nº 17536
Carne de Mertolengo, D.O.

Carne Mertolenga, D.O.P.
Nº
CERTIFICADO POR: CERTIALENTEJO
COMERCIALIZADO POR:
MERTOCAR S.A.
Telf. 266 707739
Fax 266 771435

Carne Mertolenga
DENOMINAÇÃO DE ORIGEM PROTEGIDA
CARNE MERTOLENGA D.O.P.
Nº 001016 MB
CERTIFICADO POR:
CERTIALENTEJO
PROMERT - Agrupamento de Produtores de Bovinos Mertolengos, S.A.
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promert@sapo.pt

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DENOMINAÇÃO DE ORIGEM PROTEGIDA

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PROMERT - AGRUPAMENTO DE PRODUTORES DE BOVINOS MERTOLENGOS, SA

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CARNE MERTOLENGA
Denominação de Origem Protegida
PROMERT - AGRUPAMENTO DE PRODUTORES DE BOVINOS MERTOLENGOS, SA
A Carne Original

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https://europa.eu/more-than-food-uae/european-quality-schemes

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Belgian Good Practice

Presented by Mr. Dirk Audenaert (BOERENBOND)

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UV disinfection of rainwater

Audenaert Dirk, Boerenbond

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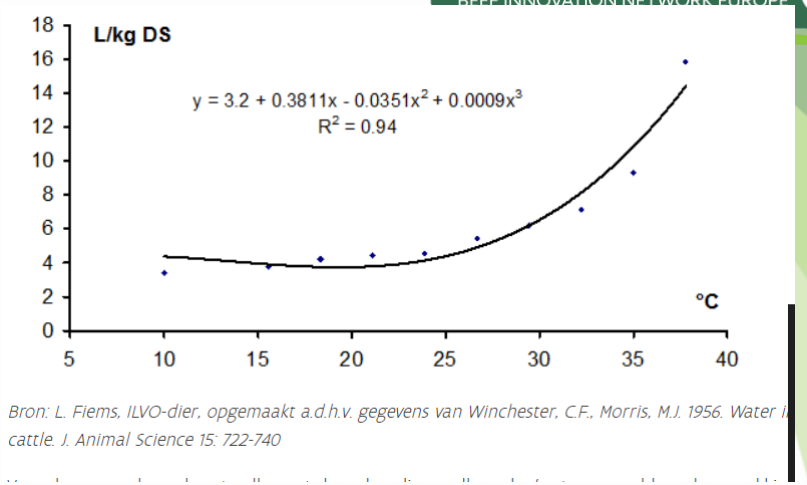
Problem



Bron: L. Fiems, ILVO-dier, opgemaakt a.d.h.v. gegevens van Winchester, C.F., Morris, M.J. 1956. Water i
cattle. J. Animal Science 15: 722-740

- On beef farms, water is used:
  - as drinking water for the animals
  - for the preparation of milk from milkpowder
  - for cleaning stables, machines and equipment.
- It is becoming difficult to obtain a permit for pumping up groundwater. Tap water is quite expensive.
- Collecting of rainwater is a solution.

Solutions

- The collection of rainwater is an obligation on most farms.
- To use this water as drinking water, the quality must meet the drinking water standards for animals.
- After a water analysis, one knows whether the quality is sufficient. Chemical elements (nitrite/nitrate , iron) have to handle separately.
- By using a UV filter, the water can be disinfected so that it is also bacterial OK and safe to give to the cattle. Sometimes people add a dose of peroxide.
- It is important to have this installation carried out by an expert company

Kwaliteitseisen waaraan het drinkwater voor kalveren en voor runderen vanaf 6 maanden oud het best voldoet - Bacteriologisch onderzoek

Eigenschap	Kalveren	Runderen (vanaf 6 m. oud)
Totaal kiemgetal 22°C	< 10.000 KVE/ml	< 100.000 KVE/ml
Totaal kiemgetal 37°C	< 10.000 KVE/ml	< 100.000 KVE/ml
Coliformen	< 100 KVE/ml	< 100 KVE/ml
E. coli	< 10 KVE/ml	< 100 KVE/ml
Intestinale enterococcen 44°C	< 1 KVE/100ml	< 1 KVE/ 100ml
Sulfiet red. Clostridia	< 1 KVE/ 20ml	< 1 KVE/ 20ml
Clostridium perfringens	< 1 KVE/100ml	< 1 KVE/ 100ml
Schimmels/gisten	< 10.000 KVE/ml	< 10.000 KVE/ml
Salmonella sp.	afwezig	afwezig

Bron: [Dierengezondheidszorg Vlaanderen] (update: 2021)

KVE: kolonievormende eenheden

UV disinfection systeem

Info

- INAGRO :
  - https://www.watertool.be/interface/index.aspx
- ALV :
  - https://lv.vlaanderen.be/nl/voorlichting-info/publicaties/praktijkgidsen/water/duurzaam-watergebruik-de-vleesvee-en

Socio-Economic Resilience Research Innovations

Presented by Mr. Kees de Roest (CRPA)

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Socio-economic resilience

Kees de Roest – Research Center on Animal Production (CRPA) - Italy

Magda Fontes – Faculty of Veterinary Medicine FMV– ULisboa

UNI Zaragoza, Institut d'Elévage , FNB, Boerenbond, PZPBM, Unicarve, TEAGASC

Transnational meeting - 2nd of December 2021

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Priority topics Year 2

1. Improving beef image on the market to promote consumption
2. Efficient housing systems

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Sustainable Meat project - Objectives

- Sustainability in meat is a complex and debated subject.
- The Sustainable Meat Project identifies the key issues, the state of knowledge and the latest trends in scientific and technical guidelines
- To show that production and consumption of meat can be sustainable, both for health and for the environment.

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Sustainable Meats project - Organisation

- From 2012, to achieve this objective, a group of operators in the livestock sector (companies and associations) an organization has been organized to support scientific studies that, in a logic of pre-competitive transparency, show objective evidence of the advantages of beef production for society
- Assocarni, Assica and Unitalia
- Launch of the website www.carnisostenibili.it and www.thesustainablemeat.com

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CARNI Sostenibili

HEALTH & NUTRITION | ENVIRONMENT SUSTAINABILITY | FOOD SAFETY & SECURITY | ANIMAL WELFARE | ECONOMICS & WASTE | EVOLUTION & CULTURE

FACT CHECKING

SEARCH IN WEBSITE

SEARCH

LATEST NEWS

Vegan diets can cause deficiencies and eating disorders in adolescents

16 Nov 2021

Lab-grown meat is less sustainable than you think

04 Nov 2021

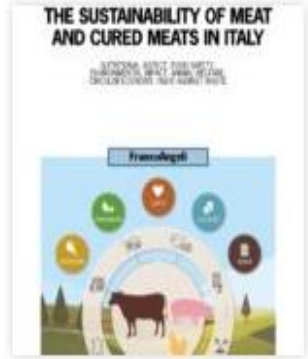
UN: meat-free diets lead to malnutrition

CARNI Sostenibili

Farm to Fork: after a year still no impact assessment

Without a comprehensive impact assessment, we will not be celebrating the one-year anniversary of the Farm to Fork strategy. Today

20 MAY 2021



Sustainable Meats project – Lessons learnt

- The main benefit of this initiative is the promotion of moderate consumption of beef and to creation of a platform to produce information about the nutritional value of beef
- It is possible to produce objective and scientific information about the nutritional value of beef and about the role of beef cattle to exploit less favoured areas in Europe, that otherwise would run the risk to be abandoned
- The role of beef cattle to exploit less favoured areas in Europe, that otherwise would run the risk to be abandoned, can be demonstrated by means of scientific research results
- The Sustainable Meat Project contributes to the maintenance of beef cattle farms in Europe and to the continuity of the generation of income and employment

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Autofeed: Operational Group

Feeding automation for cattle farms in Lombardy (IT)

Partners:

- CREA – Research Centre for Engineering and Agro-Food Processing
- CRPA – Studies and Research Foundation
- Five dairy and beef cattle farmers

Objective:

- Carrying out an evaluation of the conditions of the use of the Automatic Feeding Systems (AFS) and of partially automated systems for rationing and ration management operations in dairy and beef cattle farms in Lombardy

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Automatic feeding systems

- The AFS consists of one or more self-propelled electric wagons that manage the ration of the groups independently and at variable frequency
- A fully automated kitchen fills the wagons with the ration to be offered to animals
- The wagons operate 24 hours/day, and they can manage different rations that the various groups of animals (of different breed and age) require
- The system also monitors the animal performances and the herd's status and provides support in establishing animal health, body condition and growth performance.

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Activities of the operational group

- Analysis of the market, of the available AFS types, of the choosen installation solutions and of the opinion the breeders on AFS
- Definition of the housing models equipped with AFS and their comparison with others based on a conventional TMR (Total Mixed Ration) wagon
- Monitoring and analysis of the cattle farms already equipped with AFS to highlight the economic, production performance and animal welfare aspects
- Feasibility study in farms not equipped with AFS to define the technical and economic convenience. Comparison of before and after AFS installation.

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Examples of AFS for beef production

Verona (Italy)

A 4 m^3 self-propelled, horizontal augers, electric driven, automatic wagon serves 960 beef cattle (all females in this farm for marketing strategies)

The kitchen is based on an array of electric-driven containers and silos for the upload of different feeds

Mantua (Italy)

A couple of 2 m^3 sycronized self-propelled, vertical auger, electric driven, automatic wagons serve 800 beef cattle of three different French breeds

The kitchen is based on an electric-driven crane and silos for the upload of different feeds

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Thank you for your attention

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Animal Health & Welfare Good Practices

Presented by Ms. Floriane Prost & Mr. Jerzy Wierzbicki & Ms. Airi Külvet

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

French Good Practice

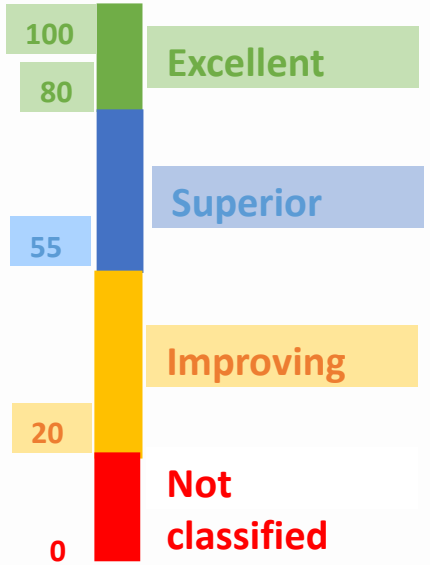
Presented by Ms. Floriane Prost (FNB)

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Boviwell Diagnosis

- Animal Health & Welfare - Simple labour-saving tools to measure and communicate high animal welfare standards on beef farms
- Boviwell is a diagnosis validated by the entire French beef sector.

- It’s based on 30-50 measures/questions on animals or their environment aggregated in a score per criteria, freedom then a global score on the farm. This diagnosis Boviwell respect the European system 'Welfare Quality’.



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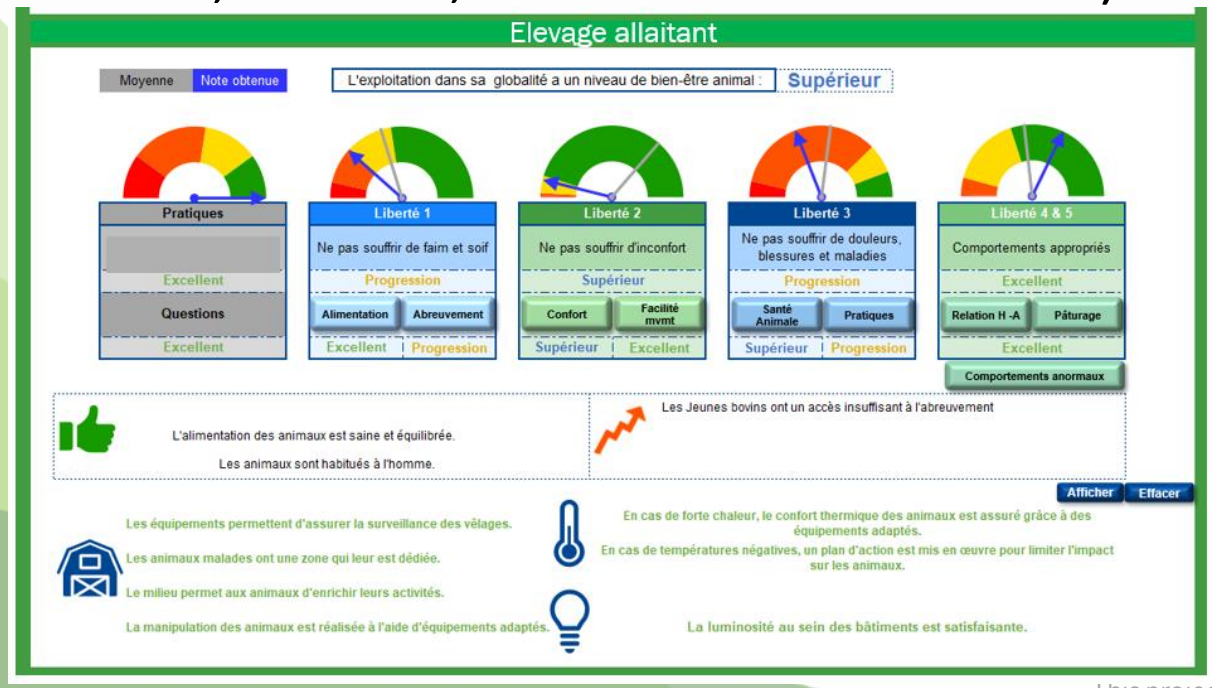
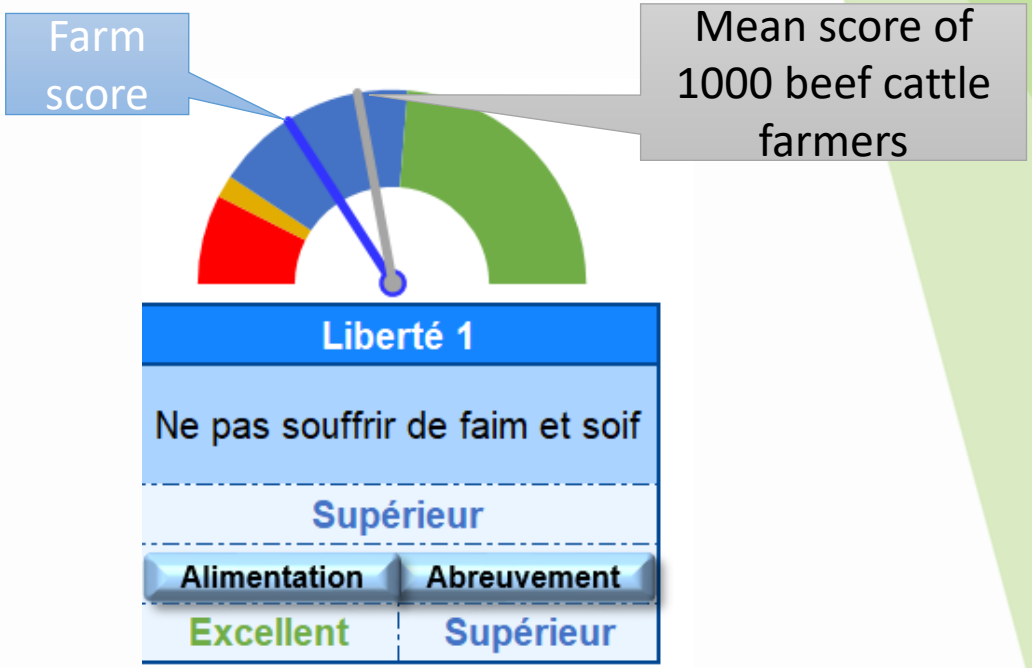
Boviwell Diagnosis

- Objective evaluation, based in the same diagnosis everywhere in France, of good practices and efforts to be made on the farm about animal welfare (food, water, health, comfort, human-animal relations).





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Polish Good Practice

Presented by Mr. Jerzy Wierzbicki (PBA)

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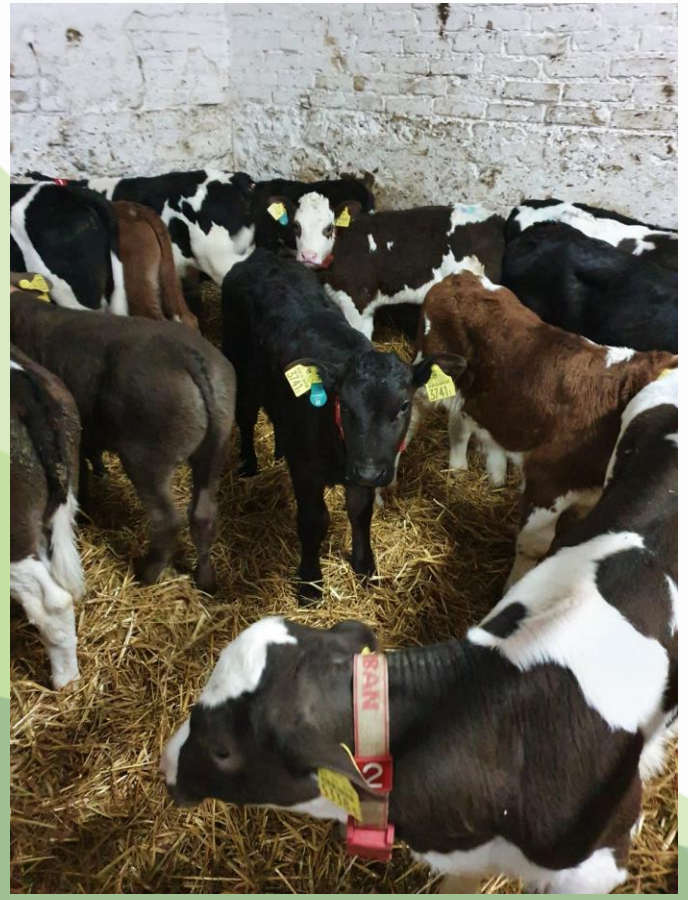
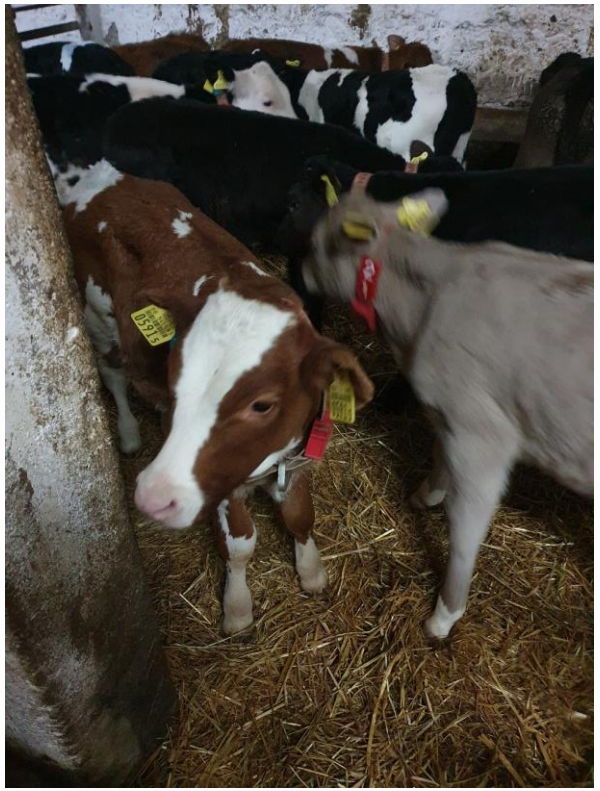
Calf and shed monitoring system





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e-stado® - How does it work?

The system contains of ear and tail biosensors, temperature and humidity detectors mounted in the barn and radio transmitters.

Biosensors

Biosensors are maintenance-free, with no need to change batteries, and can be re-installed multiple times.

For user

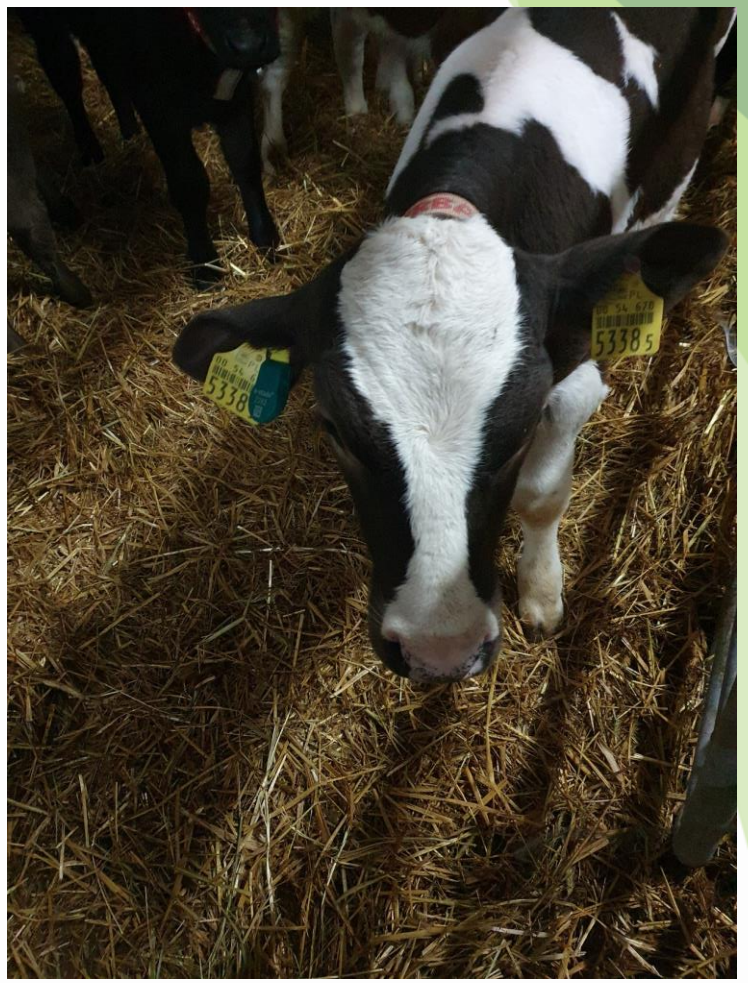
The farmer can access user panel via smartphone, tablet or computer. Urgent notices are sent via text message.

Cattle maintenance system

e-stado® monitors animals in both freestall and stanchion barns, as well as on the remote pasture.

Data

Animal activity data and barn conditions are sent to the central server, where they are processed through smart algorithms.



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Components of the e-stado® system

ear biosensor

- analyzes rumination and feeding
- analyzes resting periods
- measures body temperature
- detects summer heat stress for each animal

radio transmitters inside the barn and on the pasture

- forward data from sensors to the central server
- provide Wi-Fi internet connection inside the barn
- use safe voltage supply
- resistant to power outages
- adjusted for solar power supply on pasture

environment sensor

- measures the temperature inside the building
- measures humidity inside the building
- calculates heat stress index (THI)

barn monitor

- can be installed in barn conditions
- displays all the e-stado® functions and alarms
- hermetic casing made of stainless steel
- touchscreen

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Estonian Good Practice

Presented by Ms. Airi Külvet (Liivi)

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Low – stress weaning, with pass-through gates

- The farmer started using this method to reduce weaning stress in animals. While it became clear after the first year that gains and health improved at farm level.

- The suckler cattle are sorted in the pasture, usually between August and September, when the breeding bulls are removed from the herd. As the farmer uses portion grazing, he can sort the animals in the pasture and does not have to drive them to the farm building

- One herd is left on paddock with bull calves, the other mothers with heifer calves.
- at the end of the grazing period, (October)the different herds come into different buildings.

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The feeding area is divided into 2 to 3 sectors separated by intermediate gates.

The cows receive only hay in the barn, while the calves receive hay and silage.

For a while, the calves go to the cows to suckle -then, when they can no longer fit well- they stop going to the cow sector themselves. Then the gates are closed for good.

By this method, the milk capacity of the suckler cow is well used up and there is absolutely no stress on the animals. Mothers and calves remain side by side in the feeding area until sale.

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Animal Health & Welfare Research Innovations

Presented by Mr. Frank-Dieter Zerbe (FLI) & Mounaix Beatrice (IDELE)

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

FRIEDRICH-LOEFFLER-INSTITUT
FLI
Bundesforschungsinstitut für Tiergesundheit
Federal Research Institute for Animal Health

RI from Germany

On-Farm-Scoring for Bovine Respiratory Disease (BRD)

BovINE
BEEF INNOVATION NETWORK EUROPE

Priority Topic 4.3: Simple labour-saving tools to measure and communicate high animal welfare standards on beef farms

- BRD decreases feed efficiency and life-cycle efficiency due to high morbidities (65%–80%) and mortalities (45%–75%) **Terry, S. A. et al. (CJAS 2021)**
- The scoring procedure was developed at the Californian UC Davis School of Veterinary Medicine for weaned dairy calves
- This on-farm scoring system for BRD based on **six Clinical Signs** is accurate, fast, reliable and simple
- In particular on fattening farms, it is important to perform this before animals are bought in from different farms

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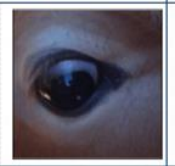
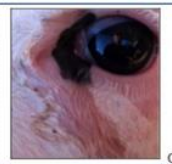
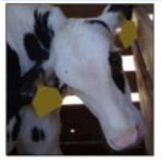
On-Farm-Scoring for Bovine Respiratory Disease (BRD)

UCDAVIS VETERINARY MEDICINE Veterinary Medicine Teaching and Research Center
UC CE University of California Agriculture and Natural Resources Cooperative Extension
UCDAVIS ANIMAL SCIENCE

Bovine respiratory disease scoring system for pre-weaned dairy calves[1,2,3]

Clinical sign	Score if normal		Score if abnormal (any severity)[4]	
Eye discharge	0		2	 Or  Or 
Nasal discharge	0		4	 Or  Or 
Ear droop or Head tilt	0		5	 Or  Or 
Cough	0	No cough	2	Spontaneous cough
Breathing	0	Normal	2	Rapid or difficult breathing
Temperature	0	< 102.5° F	2	≥ 102.5° F

Add scores for all clinical signs, if total score is ≥ 5, calf may be positive for bovine respiratory disease[3]

1. Love WJ, Lehenbauer TW, Kass PH, Van Eenennaam AL, Aly SS. (2014) Development of a novel clinical scoring system for on-farm diagnosis of bovine respiratory disease in pre-weaned dairy calves. PeerJ 2:e238 https://peerj.com/articles/238
2. Aly SS, Love WJ, Williams DR, Lehenbauer TW, Van Eenennaam AL, Drake C, Kass PH, Farver TB. (2014) Agreement between bovine respiratory disease scoring systems for pre-weaned dairy calves. Animal Health Research Reviews 15: 2 Pages 148-150 http://journals.cambridge.org/repo_A94AI150
3. Love WJ, Lehenbauer TW, Van Eenennaam AL, Drake CM, Kass PH, Farver TB, Aly SS. Sensitivity and specificity of on-farm scoring systems and nasal culture to detect bovine respiratory disease complex in preweaned dairy calves. J Vet Diagn Invest. 2016 Mar;28(2):119-28. http://www.ncbi.nlm.nih.gov/pubmed/26796957
4. Any abnormality including, but not limited to, the examples shown in the above pictures.

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https://www.vmtrc.ucdavis.edu/sites/g/files/dgvnsk5141/files/local_resources/pdfs/BRD_ANR_Brochure_Nov%202016%20FINAL.PDF

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INSTITUT DE L'ELEVAGE

RI from France

Mix and Match

Grouping Beef bulls affects social stress, respiratory disease and weight gain

BovINE
BEEF INNOVATION NETWORK EUROPE

Priority Topic 4.4: Management, housing and environmental factors which affect animal welfare in rearing and finishing units

- Grouping young bulls according to bodyweight into homogeneous groups at the start of fattening is common in France
  - Intended to simplify management
  - Conducts to a mixing on farms
- Mixing is detrimental to animal health and welfare
  - Does not guarantee higher performance or higher weight gain
  - Increases health risk due to different pathogenic backgrounds
  - Weight homogeneous groups need longer to establish a hierarchy

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INSTITUT DE L'ELEVAGE

RI from France

Mix and Match

Grouping Beef bulls affects social stress, respiratory disease and weight gain

BovINE
BEEF INNOVATION NETWORK EUROPE

Homogeneity at the end of fattening is not achieved by homogeneity at the beginning!

Important is a good start into the fattening! Helpful are short transport distances, few origins and less mixing. Vaccination programs can help to avoid respiratory diseases and other health problems due to the different pathogenic backgrounds of the animals.

See also a GP from Ireland: **Using a sourcing and animal health protocol to reduce health and welfare issues on a bull beef fattening unit in Ireland.**

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Production Efficiency & Meat Quality Good Practices

Presented by Mr. Alessandro Mazzenga & Ms. Lena Lindau

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Italian Good Practice

Presented by Mr. Alessandro Mazzenga (UNICARVE)

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Optimization of management in a consortium of farmers to reach better and standardized quality

BovINE
BEEF INNOVATION NETWORK EUROPE

BovINE Transnational Meeting

- Thematic area: Production efficiency & meat quality
- Priority Topic: Impact of animal feeding and stress on meat quality
- Description of the GP:

Cooperativa Agricola Volpago, a cooperative of 15 small producers that sells beef to local butcheries and small markets started a common commercial project which involved all the chain of production: farmers, slaughter house and processor. The central actor of the project and decisions site is the processor, also promoter of the whole project in the market. The aim is to reach a standardization of the management in animal rearing to obtain a high quality product with common characteristics, which can be recognized with a brand. All producers and processors and most of the selling point are located in Veneto Region, in the province of Treviso.

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General description of the practice

- MANAGEMENT: The head of the project is the processor, a commercial site where all actors meet and take common decisions, and is the promoter of the whole project on the market

- Farms and choice of animals: farms located in a narrow area, average of 300 heads. Animals are heifers, French breeds, Garonnaise or close crossbreds.

- Animal nutrition: common nutrition specialist who planned a ration composed with few ingredients and an industrial mix to provide mostly protein and the mineral/vitamins integration.

- Quality: No silage, no GMO, supplement of linseed for Omega fatty acids enrichment of the diet. No use of antibiotic in the last 5 months of fattening.

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Results of the project

- Farmers

- have the possibility of sharing experiences of their managing with each other.
- the consortium for most of the farmers plans the arrival and the exit of the animals
- the new feeding plan allows an easier preparation and conservation of the ration
- animals grow faster with a no-silage concentrated diet

- Consortium

- the quality of meat has increased, with good feedback from the market. This allowed to increase the price.
- a quality label was created for the beef to be recognized in the market, so far at local level.
- the requirements chosen in the production phase (especially No Antibiotics…) give to this productions qualities in the direction of environmental sustainability

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German Good Practice

Presented by Ms. Lena Lindau (BRS)

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Using a measuring tape for Timing the first mating

- Production efficiancy and meat quality: Optimizing the number of calves per cow per year in beef suckler herds
- Calving as soon as possible but as late as necessary
- Prevention of negative effects on health and maturity
- Timing of first mating has impact on
  - Long and productive life of the suckler cow
  - Reproduction efficiancy of the herd

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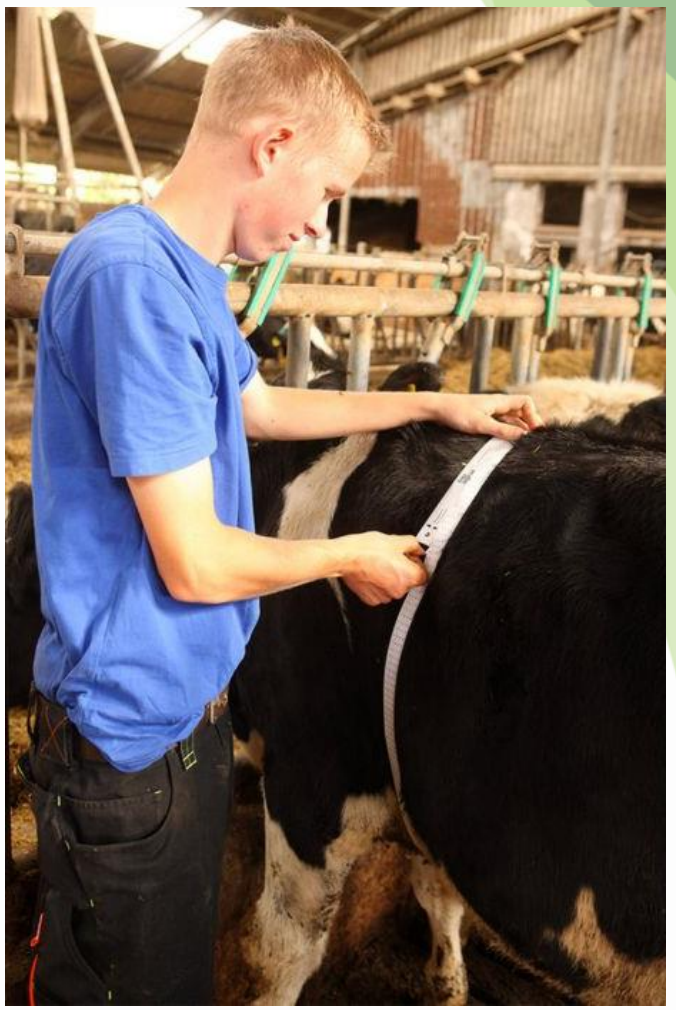
- Essential for timing of first mating: weight and physical maturity
- Special measuring tape to estimate body weight
- Circumference of the thorax and estimated weight
- Mating at approximately 60% of expected body weight
- Same person, same measuring spot
- Different breeds available



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Production Efficiency & Meat Quality Research Innovations

Presented by Ms. Virgina Resconi (UNIZAR) &
Mr. Aitor Fernández-Novo (Universidad Europea)

This project has received funding from the European Union's Horizon 2020 rural renaissance programme | Project No: 862590 under call H2020-RUR-2019-15

Analogue of maternal appeasing pheromones in beef cattle

Thematic area: Production Efficiency & Meat Quality (WP5)

Topic 5.3: Animal feeding and stress on meat quality - **Research Innovation**

Contact person: Virginia Resconi (resconi@unizar.es)

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Component	Bovine % (w/w)
Oleic acid	24.9–28.6
Palmitic acid	19.2–23.1
Linoleic acid	20.5–24.3
Myristic acid	3.2–5.6
Lauric acid	1.9–4.2
Pentadecanoic acid	
Cholesterol	
Capric acid	
Squalene	
1-docosanol 2,2-dimethyl 1,3-dioxolane 4-methanol	18.4–22.8

Riddell et al. 2021. Animals 11, 1574

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Performance data of beef calves receiving (BAS; n = 60) or not (CON; n = 60) a bovine appeasing substance at weaning (day 0; Experiment 01)[1]

Item	CON	BAS	SEM	*P*-value
Body weight, kg				
Initial	191.9	191.1	3.40	0.86
Day 14	212.0	219.6	3.16	0.09
Day 45	240.3	256.5	3.33	<0.01
Average daily gain, kg				
Day 0–14	1.43	2.04	0.151	<0.01
Day 14–45	0.91	1.18	0.031	<0.0001
Day 0–45	1.08	1.45	0.052	<0.0001

[1] Treatments (5 mL) were topically applied to the nuchal skin area of each animal.

Cappellozza, et al. 2020. *Livestock Science 238: 104067*

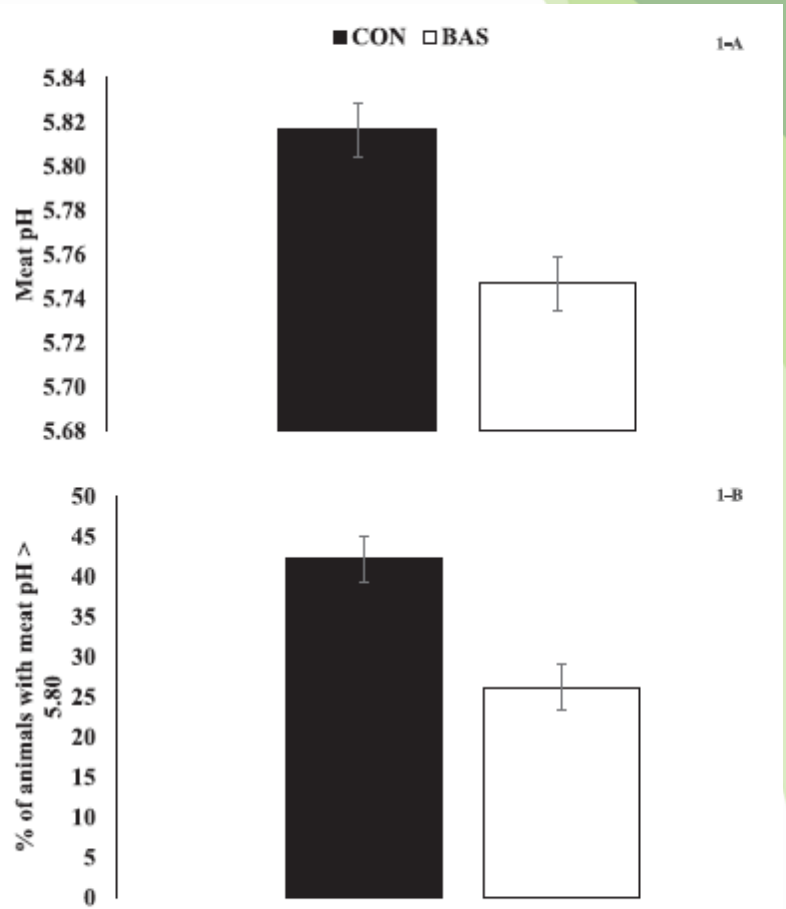

Figure 1. Meat pH (1-A) and proportion (%) of animals with meat pH > 5.80 (1-B) following administration (BAS; n = 422) or not (CON; n = 413) of a bovine appeasing substance immediately prior to transport to slaughter. A treatment effect ($P < 0.0001$) was observed for both parameters.

Potentially improves animal welfare, immunity and performance, and lowers the risk of carcass and meat quality issues: carcass bruises, DFD meat

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Standardized procedure for bull evaluation in UK and Spain

Thematic area: Production Efficiency & Meat Quality (WP5)

Topic 5.4: Animal feeding and stress on meat quality - **Research Innovation**

Contact people: Jose A. García-Paloma. Presenter: Aitor Fernández-Novo. Coauthors: Sonia Pérez-Garnelo, Susana Astiz

1 HERD → 1 BULL

Aim → 1 calf/cow/year → BULL + BBSE (yearly)

Differences between UK and Spain BBSE procedures

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UK

- Physical evaluation
- Scrotal circumference
- Seminal evaluation

Spain

- Physical evaluation
- Scrotal circumference
- Seminal evaluation
- **Mating ability and service capacity**
- **Genital ultrasound evaluation**
- **Sanitary assessment**

García-Paloma *et al., 2021*

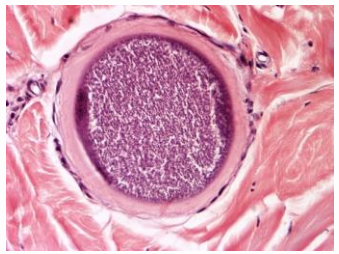
Complete exam of genital tract:

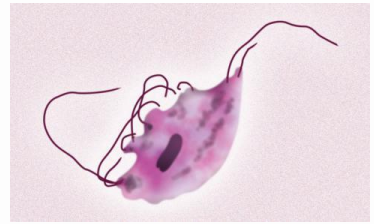
- Penis
- Testicles
- Epididymis
- Spermatic cord
- Accessory glands

Gnemmi *et al., 2020*

Pathologies in the genital tract

Transmissible pathologies to the herd





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How to preserve appropriately the seminal samples and achieve a reliable evaluation?

a) Fernandez-Novo *et al., 2021*
b) Fernandez-Novo *et al.,* 2021

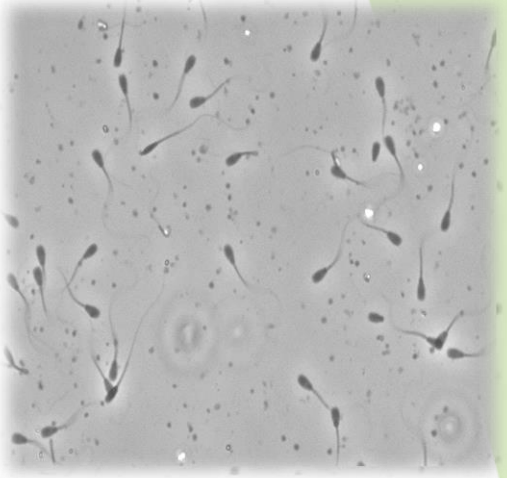
- Samples obtained under **field conditions** and not evaluated in situ
- Sometimes, several **bulls** to be evaluated at the same time
- Semen analyses performed at **Reference Laboratories**

What's the best?

Time
- <6h post-ejaculation

Temperature
- Refrigeration temp until 24h
- Ref/ambient until 6h

Extender
- Preferably, lecithin-based extenders



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Procedure	UK system		Spanish system (VART)			
	UN	S	UN	Q	S	SP
Physical evaluation						
• Scrotal circumference	<30cm	≥30	<30	30-31.6	31.7-36.1	>36.1
Seminal evaluation						
• Progressive motility (fresh semen)	<60%	≥60	<30	30-59	≥60	
• Progressive motility (refrigerated)	--	--	<30%		≥30	
• Sperm normality	<70%	≥70	<50	50-69	≥70	

Categories: UN (unsuitable), Q (questionable), S (suitable), SP (superior)

García-Paloma *et al., 2020*

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Procedure	UK system	Spanish system (VART)			
Behaviour tests		UN	Q	S	SP
• Mating ability	--				
• Service capacity	--	0 services (30min)	1 (<30)	2 (<20)	2 (<10)
Genital ultrasound evaluation					
• Complete evaluation	--				
Sanitary assessment					
• BVDV, IBR, *Neospora, Besnoitia, Campylobacter, Tritrichomonas*	--				

Categories: UN (unsuitable), Q (questionable), S (suitable), SP (superior)

García-Paloma *et al., 2020*

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Category of bulls evaluated by the VART guide and their competence to respond to a specific reproductive requirement

García-Paloma *et al., 2021*

Category	Description	Reproductive requirement
Unsuitable	Unsuitable at least in one evaluation	Removed for breeding
Questionable	Questionable at least in one evaluation	< 20 cows
Suitable	Suitable in all evaluations	20 a 39 cows
Superior	Suitable in all evaluations, SC above the breed average and two services accounted for in a 20-minute serving capacity test	≥ 40 cows

Reproductive requirement: Number of cows in estrus during the first three weeks of the mating period.

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Standardized procedure for bull evaluation in UK and Spain

Thematic area: Production Efficiency & Meat Quality (WP5)

Topic 5.4: Animal feeding and stress on meat quality - **Research Innovation**

Contact persons: Jose A. García-Paloma. Presenter: Aitor Fernández-Novo. Coauthors: Sonia Pérez-Garnelo, Susana Astiz

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