UP FARMING

Co-funded by the European Union

Erasmus+

PIEMONTE - GALICIA

PART 4

Updating sustainability application & communication in the livestock farming sector

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PREFACE

Sustainability communication (whether linked to environmental issues or social issues) is not an enlargement or an evolution of traditional commercial communication

Objectives of commercial communication: to promote economic exchange or convince, and in some cases deceive the target of the goodness of a product/company compared to the competition

Objectives of sustainability communication: to provide information and, at a higher level, cultural dissemination to develop a new model of consumption and lifestyle

A NEW PRODUCTIVE PARADIGM

Sustainability is a general new productive paradigm

Farms carried out "green" activities, but the intensive agriculture is perceived from the public opinion as a "grey" activity, and highly polluting as the industrial sector

As in commercial communication, also for communicate the sustainability is a key tool the active involvement of the stakeholders

Communicate sustainability is important also for the "green" activities and require some fundamental steps following detailed and described by key words

1st KEY WORDS: KNOWLEDGE AND AWARENESS

Agriculture and livestock (and meat) has been the subject of ideological debate and misinformation for a long time

Attacks so widespread and pervasive as to rise doubts about the real risk of these anthropic activities

GUILT

But these attacks are…

✓ often generic

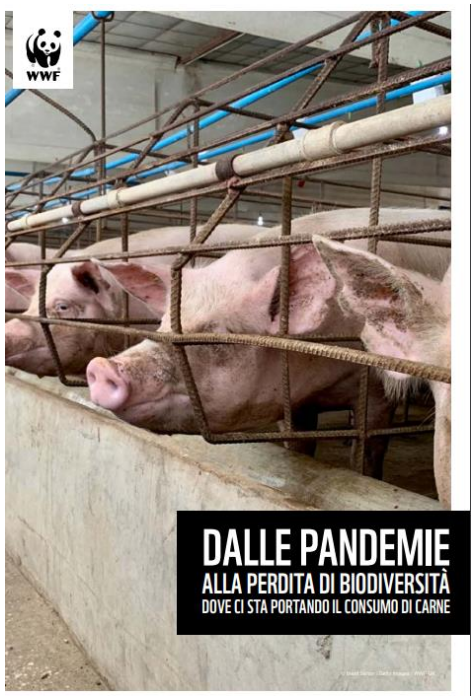
✓ not supported by serious or verifiable scientific evidences

✓ moved from extremist positions (supported by persons with extreme intransigent positions and not inclined to confrontation and debate)

THE INFORMATION

The weight of the meat

....
Promuovere una dieta principalmente a base vegetale
....



Pandemic and biodiversity loss

The hidden cost of meat

TESTIMONIAL

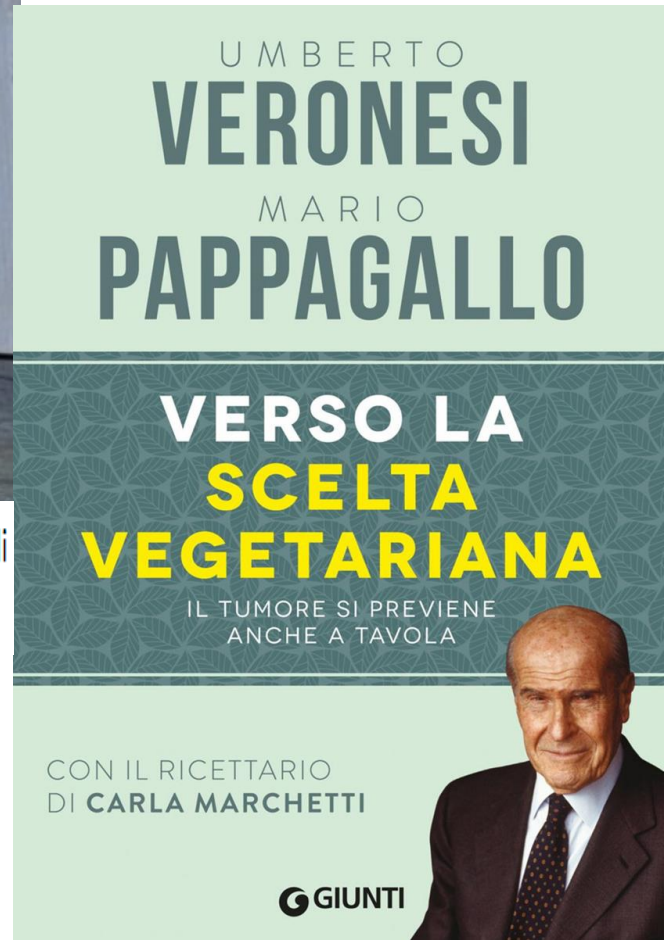
INTERVISTA

Luca Mercalli: “La produzione di carne aggrava i problemi del clima”

di *Federica Giordani*

Tempo di lettura: 1 MINUTO

Luca Mercalli a “Che tempo che fa”: la riduzione delle emissioni passa dai trasporti (prima che dagli allevamenti)



KNOWLEDGE AND AWARENESS

Like any human activity, agriculture uses resources and produces waste but is not the main cause of Earth pollution and climate change

Certainly, it is the cause of some specific pollution

Agriculture has already done a lot and is still doing a lot to reduce its impact and increase sustainability

Example:

- Production of GHG and global warming
- Water footprint
- Antibiotic resistance
- Health hazard
- …

GLOBAL WARMING

GREENPEACE

Gli allevamenti intensivi in Ue inquinano più delle automobili

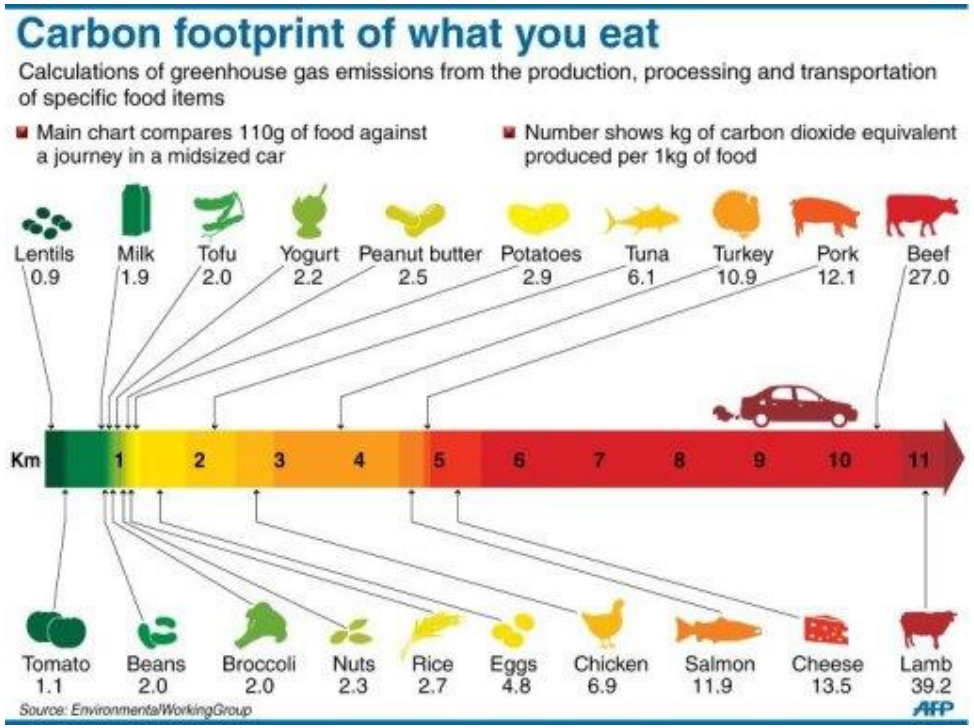
Greenpeace
24 Settembre 2020

This calculation considers the product life cycle "From the cradle to the grave"

In the case of beef from feed production (the cradle) to the final consumer (the grave)

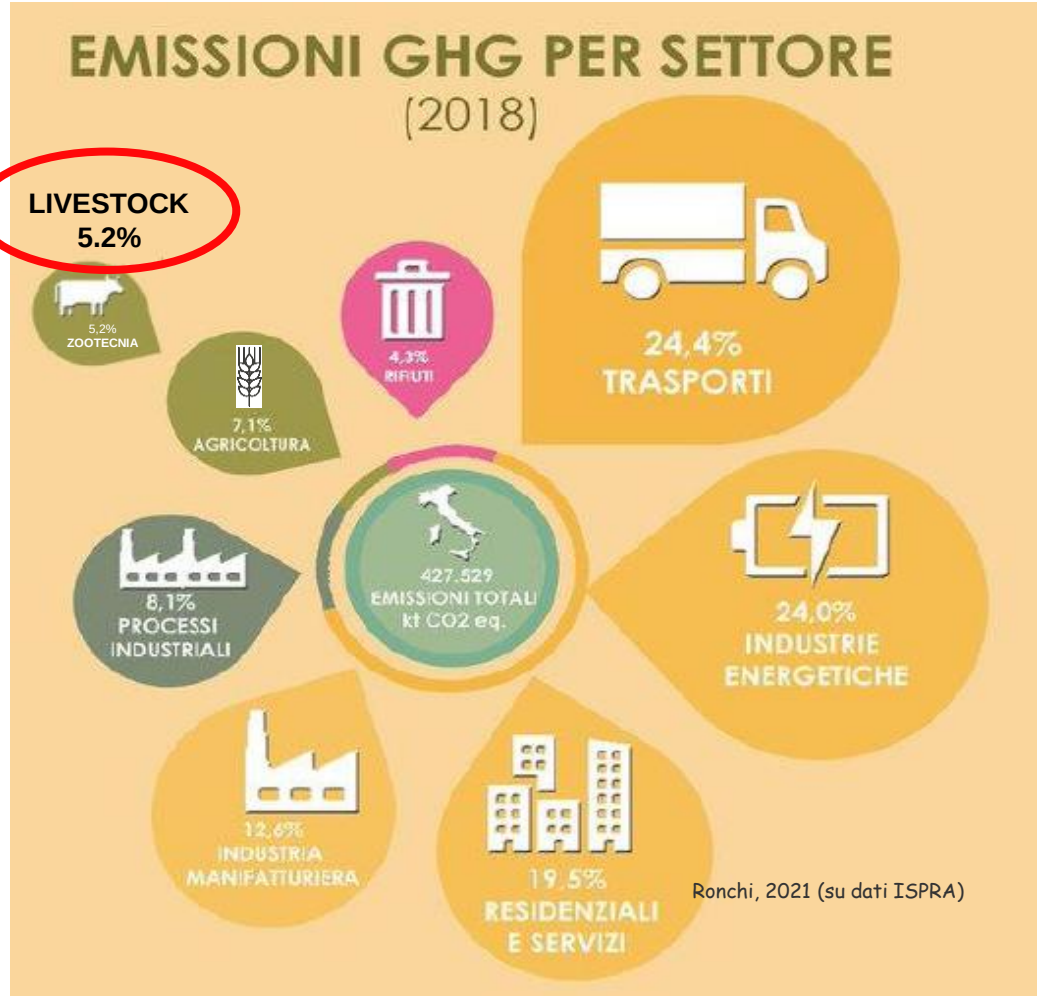
In this comparison for the car the production life cycle is neglected

CO_2 equivalent produced per kg of product



Presented in this way it seems that cattle are the cause of gases emission

THE REAL EMISSIONS WEIGHT OF ITALIAN LIVESTOCK



According to all official institutions (EU, EEA, ISPRA, etc.)

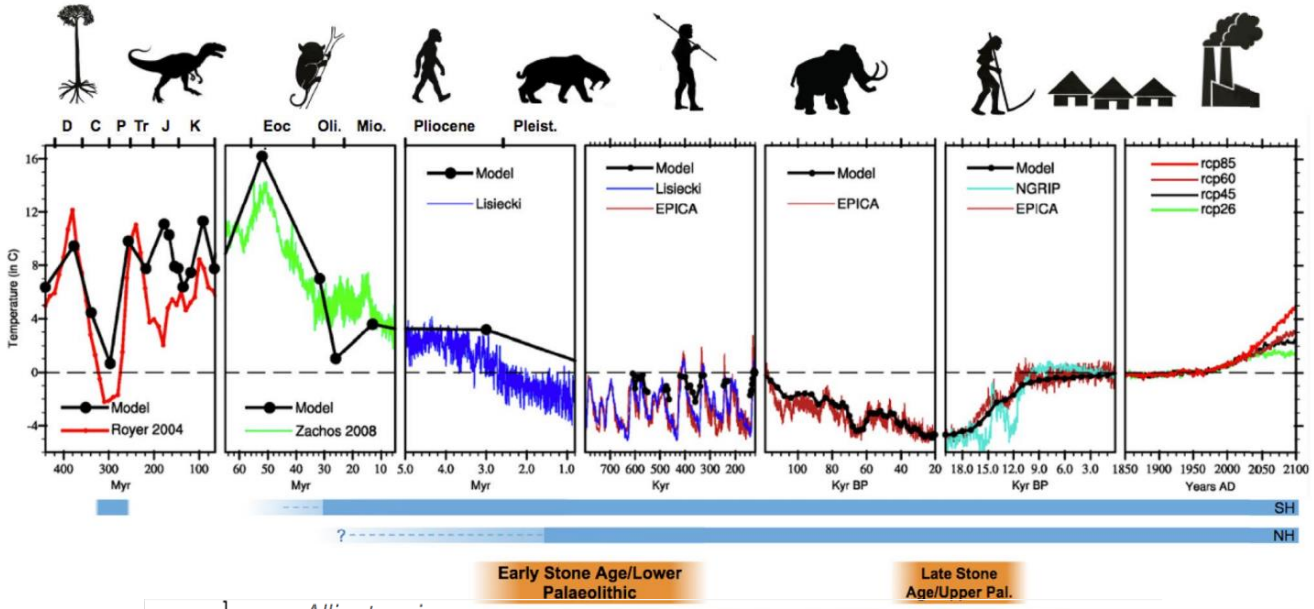
it does not appear, as stated by many parties (Greenpeace, etc.), that livestock emits more GHG than other sectors

Worldwide, the emission of these gases would be close to that of wild ruminants before domestication

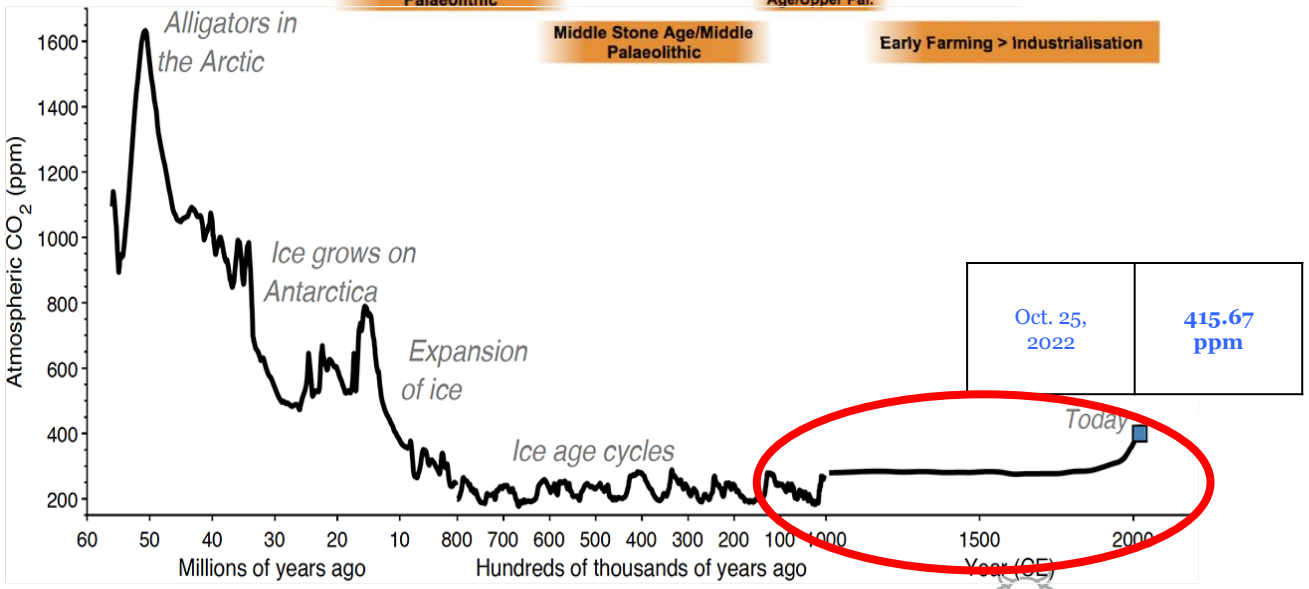
(Hirstov, 2012; Hirst, 2019)

THE GLOBAL WARMING

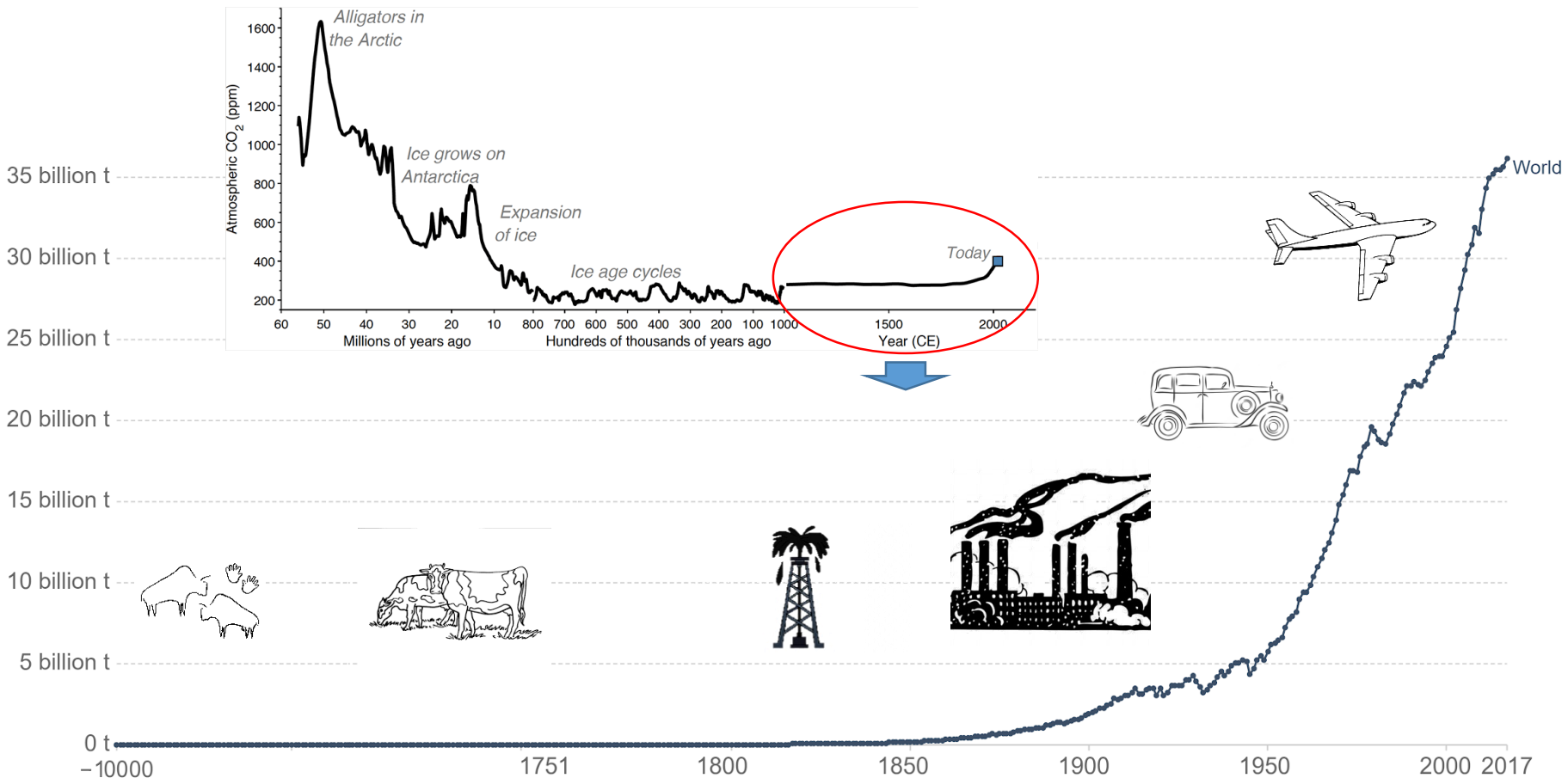
Earth temperature (°C)



Atmosferic CO_2 concentration (ppm)

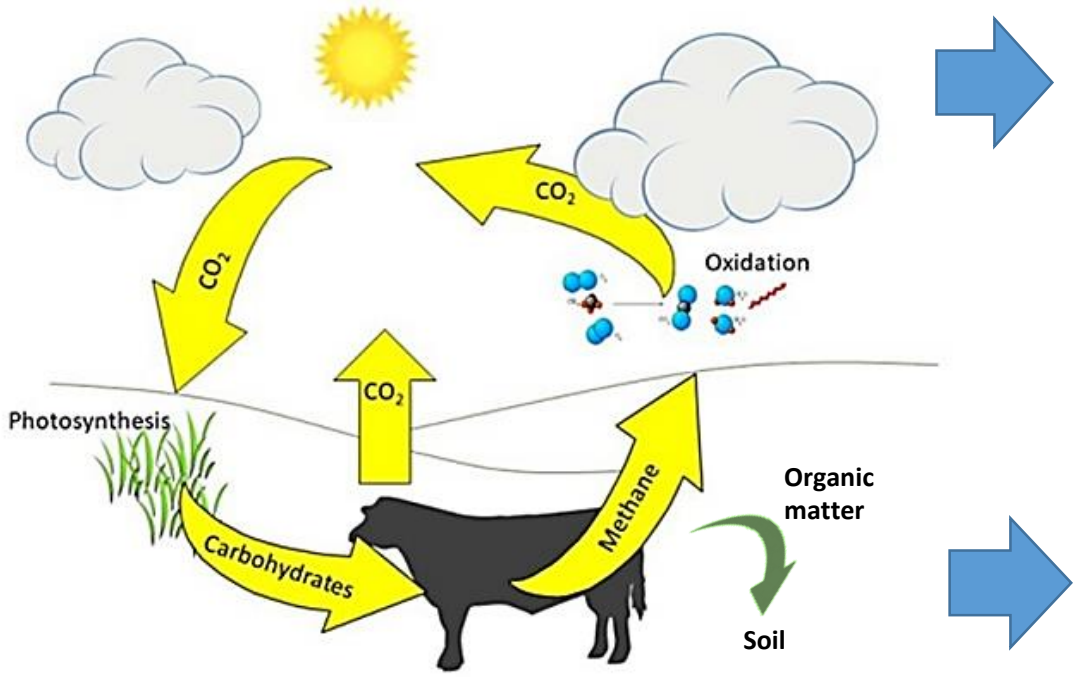


THE GLOBAL WARMING



Source: Global Carbon Project; Carbon Dioxide Information Analysis Centre (CDIAC)
Note: CO_2 emissions are measured on a production basis, meaning they do not correct for emissions embedded in traded goods.
OurWorldInData.org/co2-and-other-greenhouse-gas-emissions/ • CC BY

CARBON DIOXIDE PRODUCED BY ANIMALS DOES NOT ACCUMULATE



Bertoni e Mariani, 2020 (Modificato)

Biogenic CH_4 takes an average of 12 years to be oxidized to CO_2
(ONU, IPCC AR-4)

Animals promote the removal of CO_2 from the atmosphere by stimulating photosynthesis and in the form of organic matter that accumulates in the soil reducing the risk of erosion and desertification

IMPROVE THE ESTIMATION OF THE CLIMATE-CHANGING EFFECT OF GASES

The method for calculating the gases Global Warming Potential (GWP) was proposed in 1990

After 30 years of widespread use, it has created a certain "inertia" in its use without questioning its limits.

To try to improve the method today are proposed alternatives:

Assessment	Error	Estimation
GWP (Global Warming Potential)	±40%	aggregate effect of GHG on GWP
GWP_{100} (GWP orizzonte 100 anni)	±40%	effect calculated on 100 yeras
GTP_{100} (Global Temperature Potential)	±75%	temperature changing imputable to a gas
GWP* (short-lived gas)		Effect of short-lived gases

None of these methods consider the biogenic origin of CH_4

Only NZL has been doing since 2019

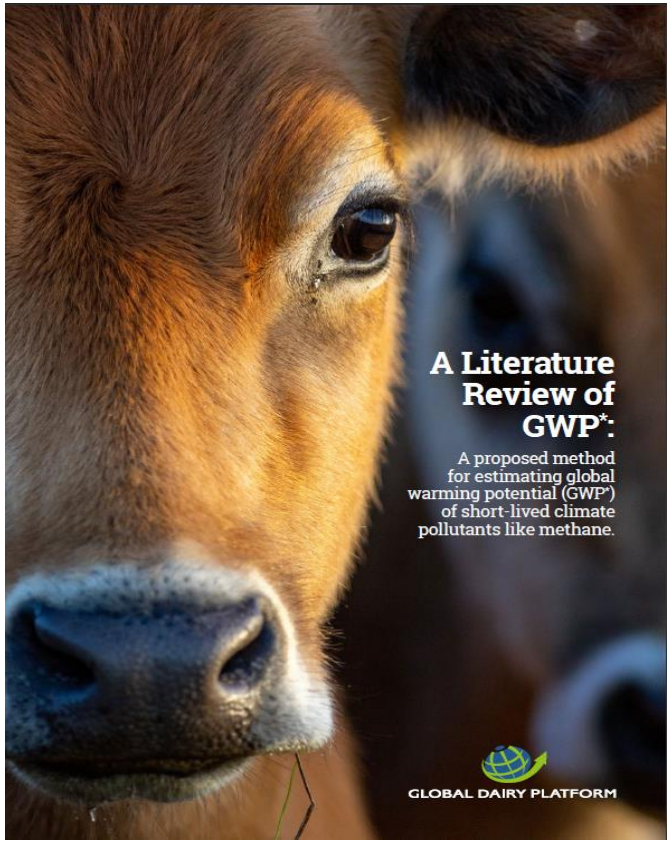
INTERESTING OUTLOOK FOR GWP*

Need to find new methodological approaches for the assessment of anthropogenic CH_4 emissions and new measurement systems

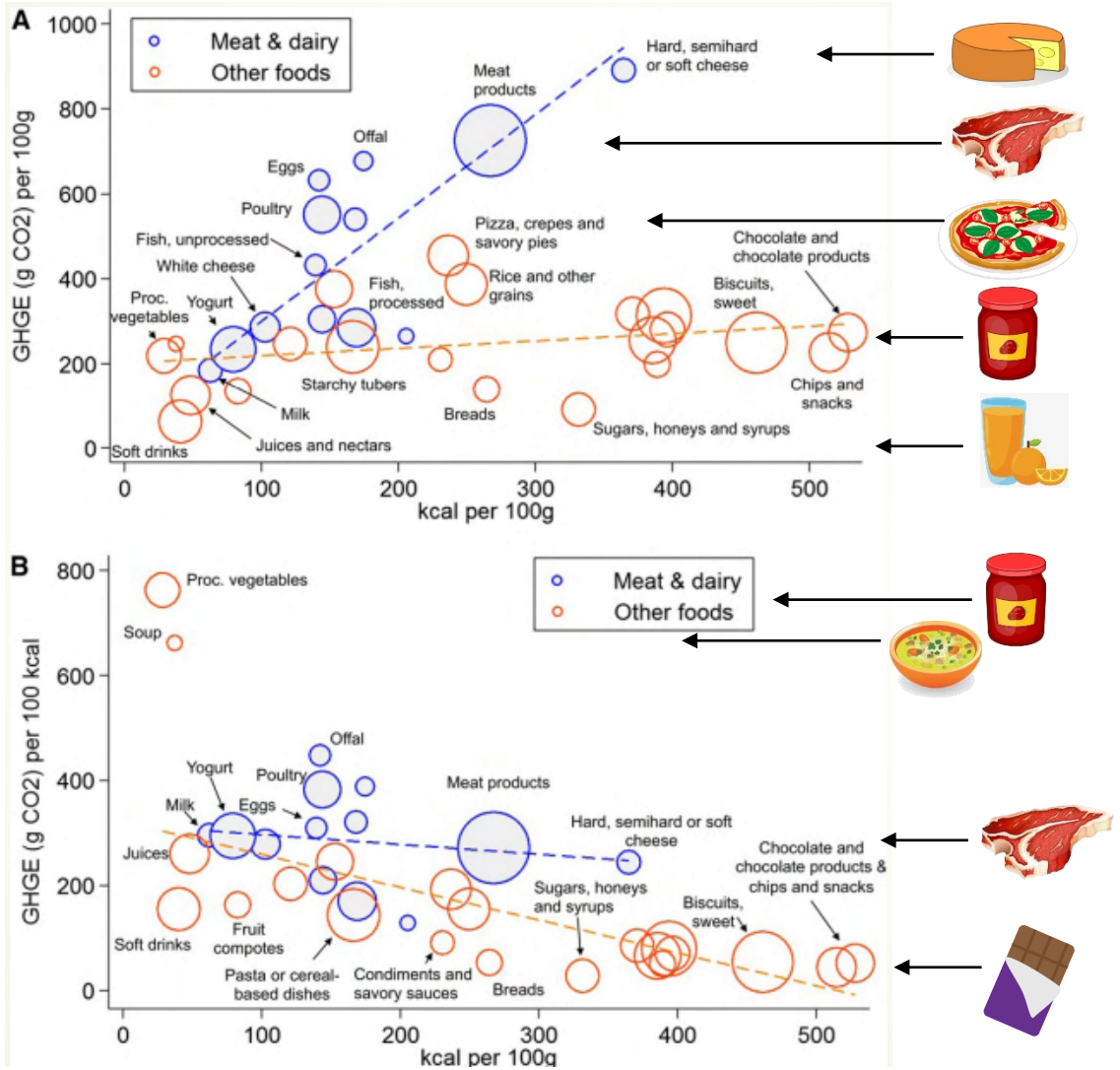
A step in this direction is made by the GWP*

- ✓ for more precise assessments of the global warming effect of short-life gases as methane
- ✓ Provide to policy makers with a simple tool to understand the GHGs dynamics

Aim: to limit the temperature increase to 1.5°C by 2050



THE UNIT OF MEASUREMENT CONDITIONS THE FINAL EVALUATION ON SUSTAINABILITY



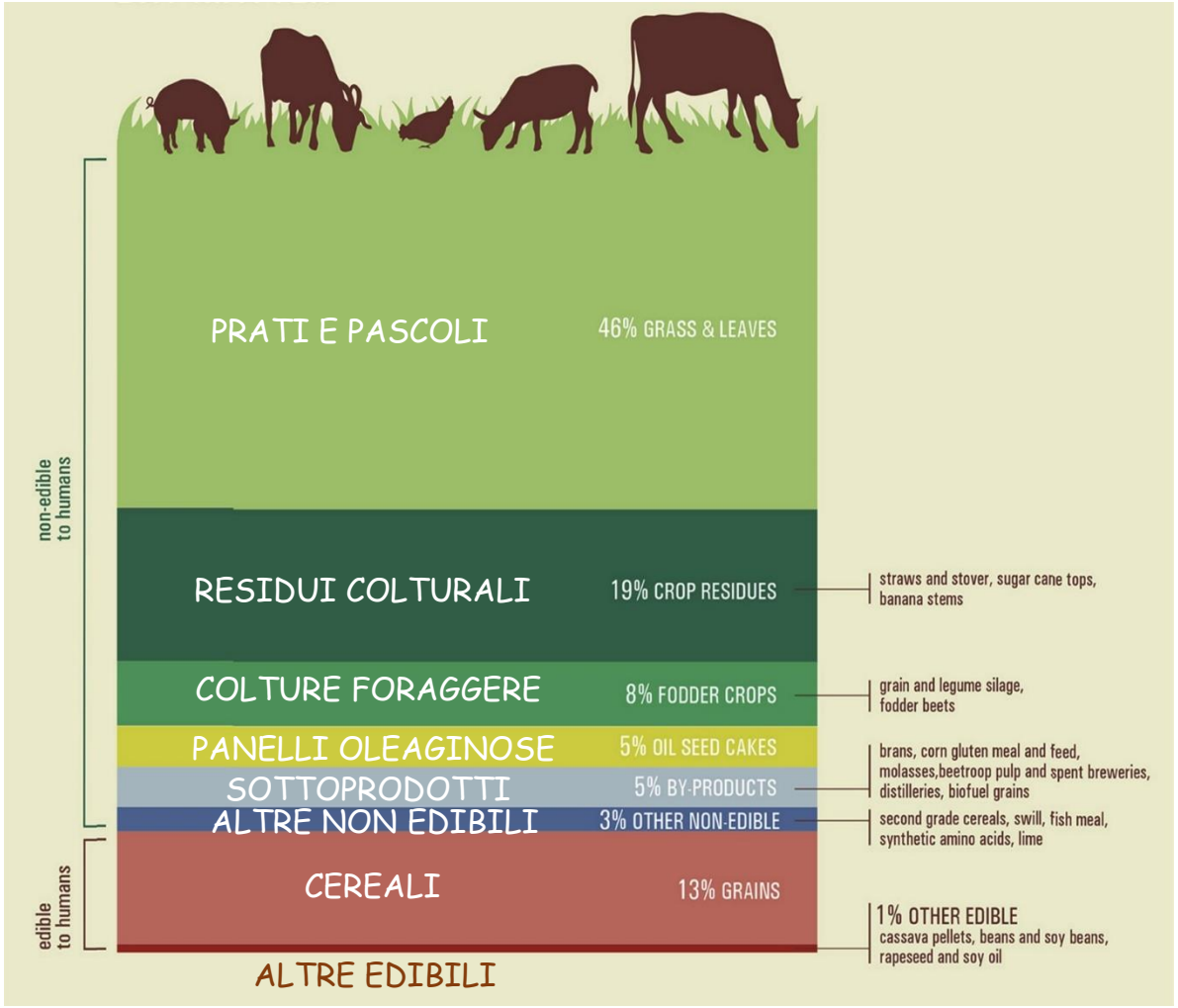
By product weight unit

By energy concentration

(Drewnowsky, 2015)

COMPETITION WITH HUMANS FOR FOOD RESOURCES

Circa 6.0 Gigatons

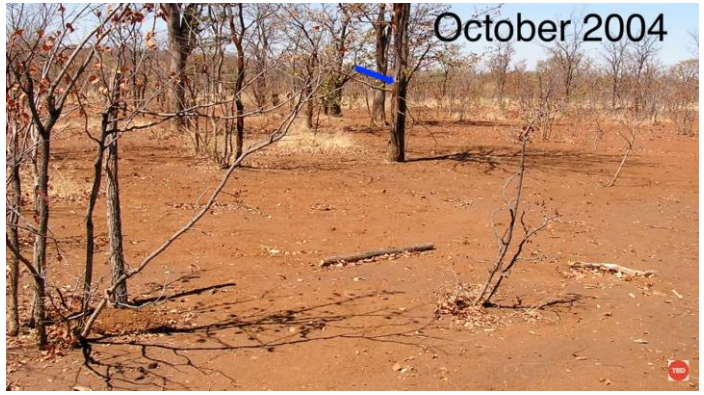


FAO, 2017 (Adattato da Mottet et al., 2017)

They transform foods of low biological value or unusable for humans into foods of high biological value

AND SPEAKING ABOUT SOIL DEGRADATION …

Africa



Messico

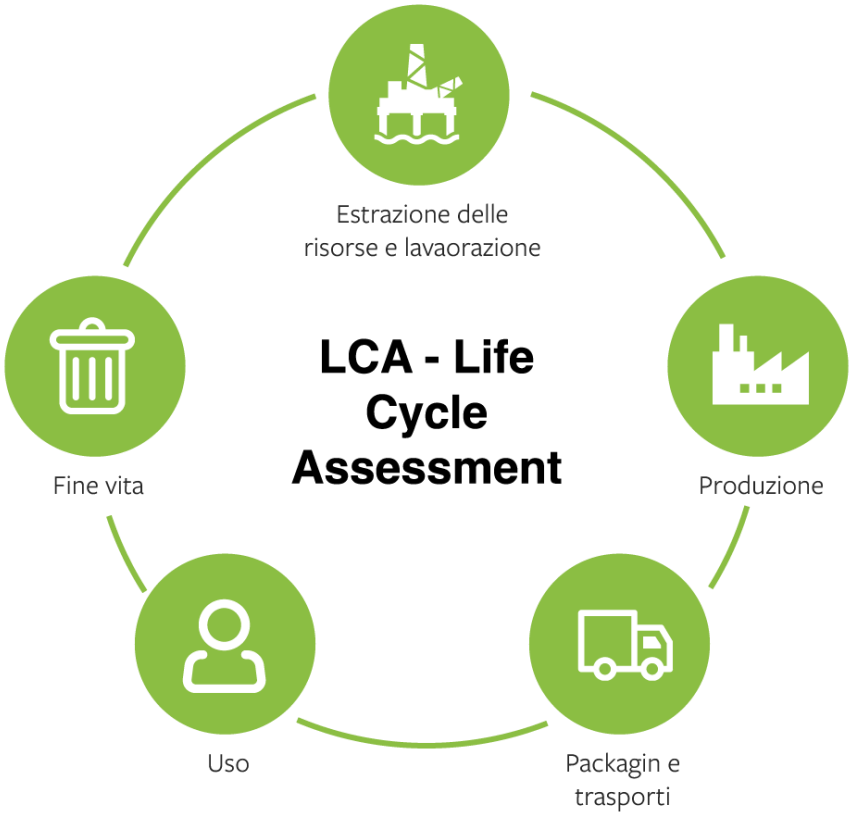
Patagonia

Savory, 2008

Reintroduction of animals has determined the recovery of degraded areas due to the contribution of organic matter to the soil

Confermation of the role of animals in the ecosystem and agri-ecosystem

2nd KEY WORDS: MEASURABILITY AND DEMOSTRABILITY



The measurement of sustainability must be done with a recognized, reliable and clearly codified method

At political level, the method required is often the LCA (Life Cycle Assessment), but not only, because comply with the above request

For example, in some countries, such as Denmark, the LCA method is required by the policy makers to demonstrate the veracity of "green" claims of the communication actions

LIMITATION OF MANY METHODS REQUESTED

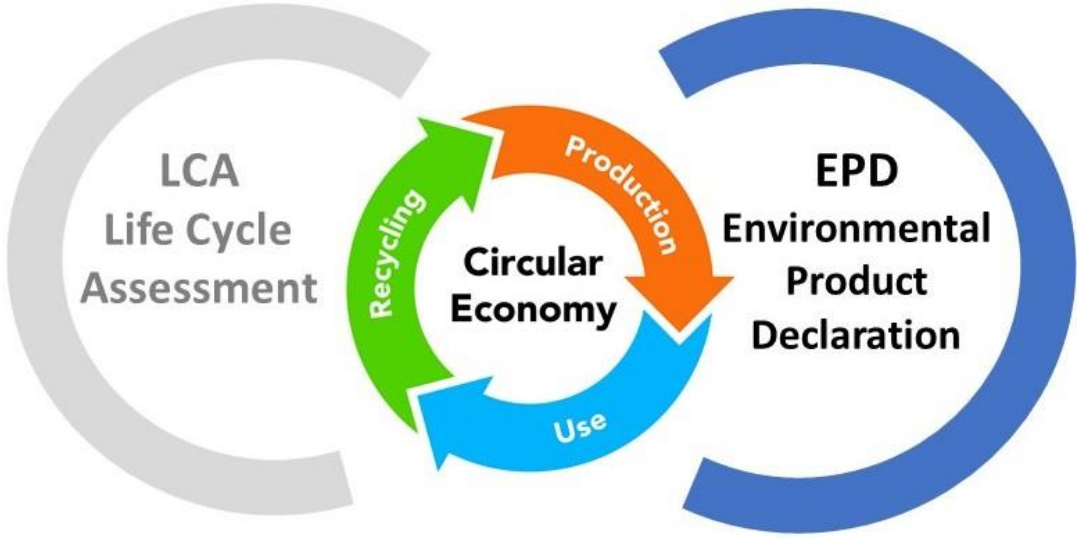
As discussed in the Part 2 of this lesson module, both LCA and others methods are born to evaluate industrial productive processes, but showed some limits when applied to biologic systems that are complex systems with interaction with others biologic sectors (air, water, soil, habitats, biodiversity, …)

Thinking about agriculture and livestock, there are impacts that the LCA standard does not consider

Need to study and propose new methods that can make a complete evaluation

3rd KEY WORDS: CORRECTNESS, TRUTHFULNESS AND COMPARABILTY

Communication, usually is built on creative bases, of visual impact and addressed to the recipients, for communicate sustainability must be founded on objective data, scientifically analysed that return true results, collected following harmonized procedures also at international level, verifiable and possibly certified and replicable by third parties



For example

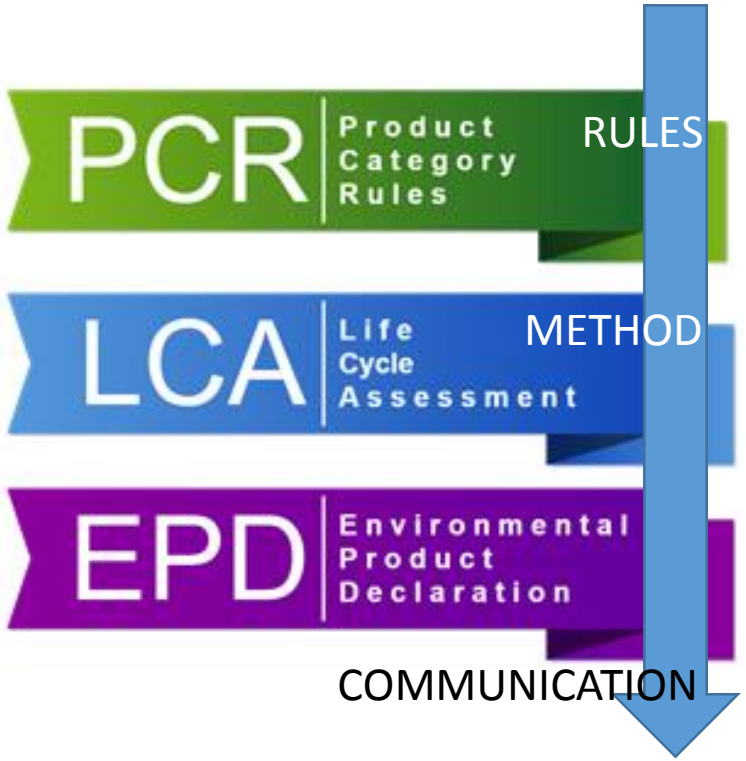
the LCA analysis

Could be validated with

EPD (Environmental Product Declaration)

with the aim of comparability

EPD AND PCR



EPD (Environmental Product Declaration)

Designed to improve environmental communication between producers and between distributors and consumers
Producer communicates data and information relating to the environmental performance of the products and services offered

PCR (Product Category Rules)

Rules carried out to a homogeneous comparison of the environmental impacts of the same product/service when is conducting the LCA
These rules are drawn up respecting specific (per product category) and rigorous methodological requirements, the basis for verification by third parties (independent and accredited) that will validate the EPD, in order to guarantee the credibility and truthfulness of the information

TO IMPROVE ENVIRONMENTAL COMMUNICATION

These procedures are expensive, require specific skills, then can be carried out only by big commercial groups and are not for individual farm or livestock

Can lead to an environmental volountary label system:

- ✓ Environmental labels Type I – ISO 14024
- ✓ Environmental self-declarations Type II – ISO 14021
- ✓ Environmental Product Declarations ISO Type III – ISO 14025

Type I labels, such as the Ecolabel, are certificated by an independent body; are developed on a scientific basis and provide compliance with specific limits, e.g. energy and material consumption, taking into account its entire life cycle

Type II environmental self-declarations, e.g. "recyclable" and "compostable" labels, require compliance with specific requirements on the information content and mode of dissemination Certification by an independent body not required

Type III EPD, based on the LCA conducted according to rules and requirements of PCR (Product Category Rules) make the data and information relating to a category product comparable with each other

4th KEY WORD: CLARITY

The contents for a correct and truthful communication of the sustainability are complex, technical and specialized

The communication challenge is to transform complex into simple, usable and as clear as possible content

Simple for the most general targets but not simplistic

Deepening the same aspects at the highest level for the most specialized targets

It will therefore always be necessary to pursue the correct specification of the themes and arguments adduced, eliminating any risk of ambiguity and misunderstanding

5th KEY WORD: ACCURACY

Environmental and sustainability communication must be punctual, detailed, precise and true

Is not possible neglect the details and modify or twist the reality

Communication must be unambiguous and supported by objective scientific evidence

The challenge is to find a correct balance between technical data (often too complex and usable only for a specialized audience) and a more generic but not partial communication

More accurate will be the scientific basis and coherence, higher will be the possibility of a positive receiving by the public opinion to avoid critics, negative evaluations or accusations of greenwashing

SUSTAINABILTY COMMUNICATION IN THE EU

EU study says 42% of environmental sustainability messages are false or misleading

There is a huge amount of companies that claim to be "Green" just to reap economic and image benefits, but it is not

In 2005 the EU issued a Directive (Dir. 2005/29/EC) on unfair commercial practices, which also includes a section dedicated to sustainability and "environmental claims"

It is therefore not correct to use images such as leaves or trees or the color green, which implicitly suggest a particular attention to sustainability (marketing strategies)

PUNISHABILITY OF FALSE DECLARATIONS

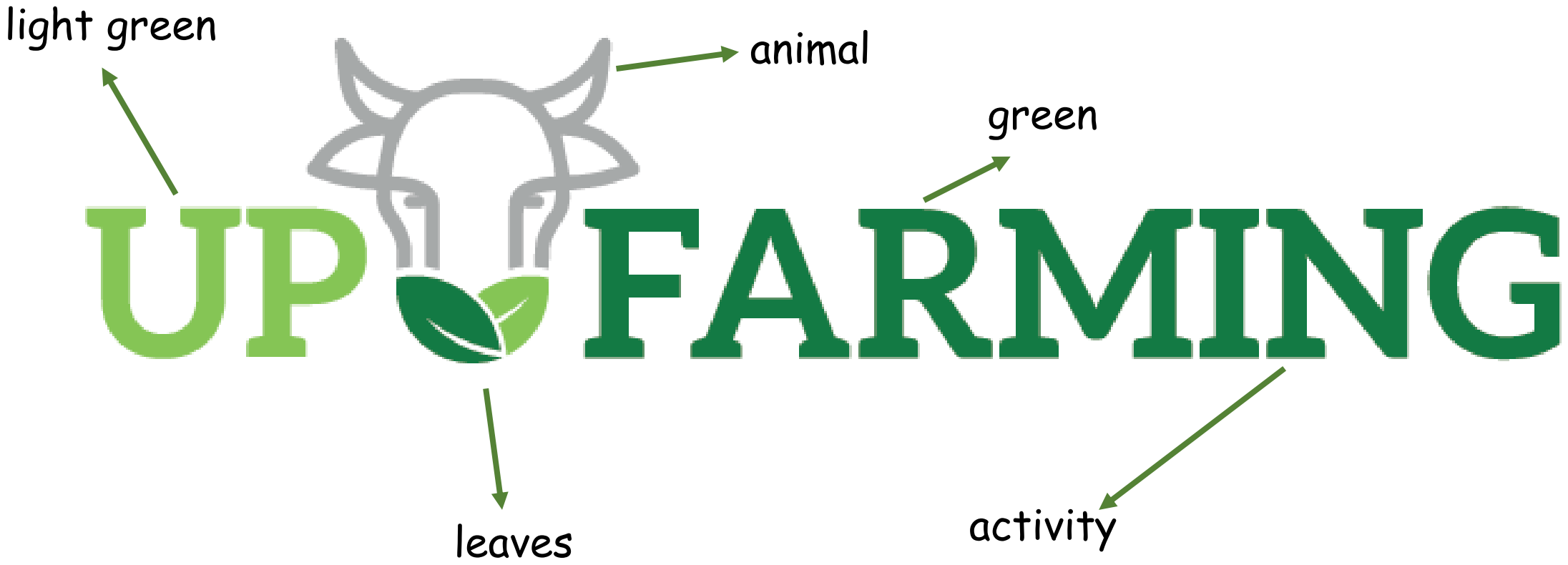
This practice is called "greenwashing": misappropriation of environmental virtues aimed at creating a "green" image

In November 2021 in Italy the first civil sentence was pronounced for "greenwashing", i.e. for the distorted use of environmental sustainability for promotional purposes

The alleged sustainable qualities of a product or a company can no longer be vague, generic or exaggerated, but must be scientifically proven or demonstrable

UP FARMING PROJECT

Attention also our logo suggest a green claim!



6th KEY WORD: RELEVANCE

Communication:

- ✓ deal with issues that are highly relevant to the stakeholders of the supply chain
- ✓ not focus on secondary aspects of little interest because convenient, leaving out crucial aspects with not good performance of the farm
- ✓ the level of relevance is not decided by the farmer but by the addressee of the message (the importance of stakeholder engagement activities)
- ✓ the farmer must be able to modulate its communication and content, ensuring consistency of the information according with the characteristics of the target
- ✓ not magnify performance or benefits intrinsically "green" or inherent the type of product (the same for all competitors) and not deriving by the implementation of a sustainable or innovation strategy and changing of production processes peculiar of the farm

FARM AND LIVESTOCK SUSTAINABILITY COMMUNICATION

Starting from the awareness that the farmers are not polluters but guardians of nature, it must be recognized that not all farms are the same

Farmers are not sustainable regardless, but it is need to activate the right activities to improve this function

The level of sustainability of farms is growing

For farms and livestock, it is important to consider each aspects of sustainability (environmental, social and economic)

Communicate this information correctly and in the right way knowing that it is difficult to communicate complex aspects in a simple way

Assertion always based on scientific data and evidence

CURRENT SUSTAINABILITY COMMUNICATION IN ITALY

Actually, the communication is done both for ethical and commercial reasons

What Italians look at when shopping?

- ✓ Origin (Italianity)
- ✓ Sustainability

(Coop Report, 2022)

1 product out of 4 reports claims on environmental sustainability

(Immagino Report, 2022)

Then in Italy communication is done prevalently by big agri-food companies, sustainability declarations are often linked to voluntary regulations adopted by individual companies (Barilla, Granarolo, etc.) and regard environmental sustainability

THE EXAMPLE OF GRANAROLO AND BARILLA

GRANAROLO

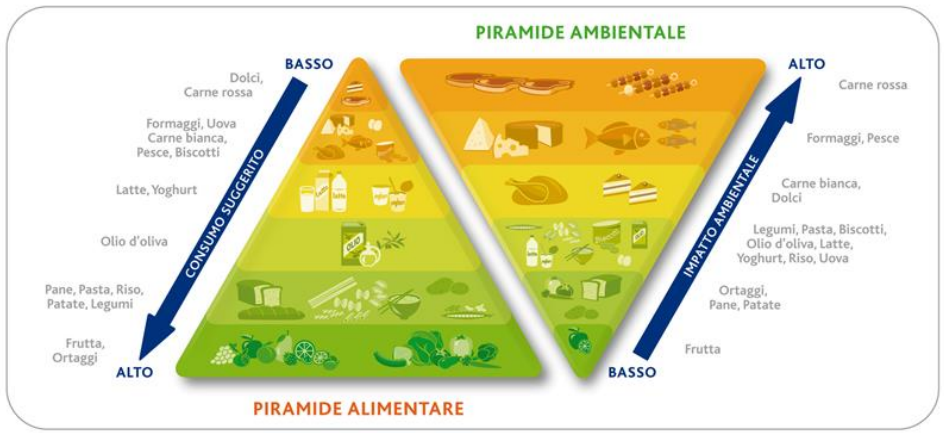
Granarolo lancia il manifesto 2021 per la sostenibilità

Barilla

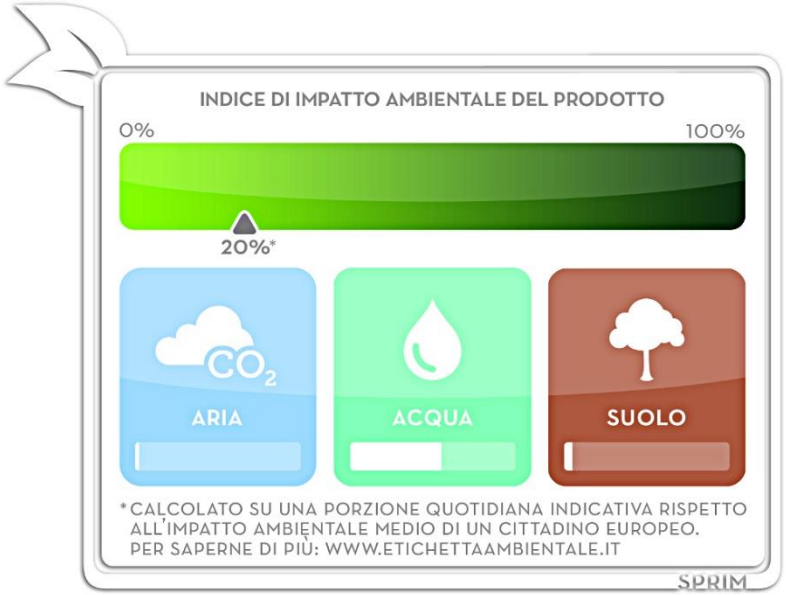
N°1 in ITALY

BUONO PER TE BUONO PER IL PIANETA.IT

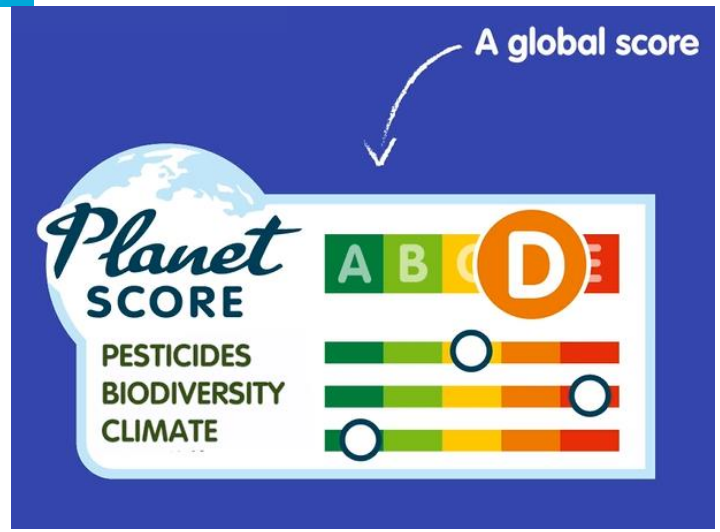
#BONTÀRESPONSABILE



RECENT PROPOSALS FOR ENVIRONMENTAL LABEL



Based on LCA plus other indicators



Limits:

- ✓ for product and not for company (farm) or process
- ✓ environmental only
- ✓ based on LCA
- ✓ are developed for conventional food (and the novel food as the cultured meat?)
- ✓ for information only, do not provide evaluation methods, preferability criteria or minimum levels to reach

ENVIRONMENTAL MARKS

"Made Green in Italy"

Voluntary national scheme for the assessment and reporting of the environmental footprint of products (Law No 221/2015).

It is based on the PEF - Product Environmental Footprint method (Provided by the EU)

"EMAS"

Audit and eco-management scheme is a voluntary EC tool that assesses and improves the company's environmental performance

THE MGI METHOD

MINISTERO DELL'AMBIENTE E DELLA SICUREZZA ENERGETICA

MADE GREEN IN ITALY

Evaluation carried out with 3 merit classes

Classe A – Prodotto eccellente, con prestazioni migliori rispetto al prodotto medio;

Classe B – Prodotto con prestazioni simili a quelle del al prodotto medio;

Classe C – Prodotto con prestazioni peggiori rispetto a quelle del al prodotto medio.

For the agriculture sector unlikely requested by single farms but by second or third level associative structures provided of product specification

NEW SCIENTIFIC METHODS FOR THE FUTURE?

Considering the limits described for the methods showed, scientific work continues to improve the sustainability assessment

Even the University of Turin, in particular my Department (Department of Agricultural, Forestry and Food Sciences - DISAFA), under my supervision, is working on the development of a method that we have called I-sustain

The method implemented by DISAFA of UniTo

PROPOSED METHOD

Evaluate each sustainability component with a dimensionless unit

Phases:

1) Select social, economic and environmental clusters

2) Collect the actual farm characteristics and activities

↓

Probability (P) of a sustainable action

3) Collect social, economic and environmental indexes of the farm's geographical area

↓

Severity (S) of a sustainable action

4) Sum the evaluation of each cluster to obtain the final Sustainability Index (SI)

DOMAINS IDENTIFICATION

Chosen 3 **components** or domains:

ENVIRONMENTAL

Specifically referring to the consumption of resources and the emission of pollutants

TERRITORIAL

Refers to functions mainly related to agro-ecosystem services

SOCIAL-ECONOMIC

Refers to functions that have general social and economic repercussions

CLUSTERS SELECTION

3 components or domains

5 clusters x component

DOMAIN	CLUSTER
ENVIRONMENTAL	ENV 1 – Biodiversity ENV 2 – Nitrates ENV 3 – Renewable energy ENV 4 – Global warming effect ENV 5 – Acidification
TERRITORIAL	TER 1 – Landscape TER 2 – Infrastructures TER 3 – Defence of the territory TER 4 – Defence by landslide and erosion TER 5 – Defence by Inundation
SOCIAL-ECONOMIC	SOC 1 – Local supply chains SOC 2 – Social functions SOC 3 – Tourism SOC 4 – Culture SOC 5 – Economic functions

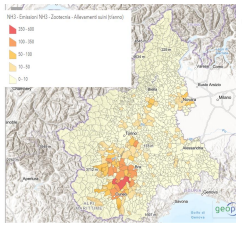
The functions performed by a system must be discussed previously and shared as widely as possible so to adapt they to an appropriate territorial scale

THE TERRITORIAL CONTEXT DESCRIBED BY INDEXES

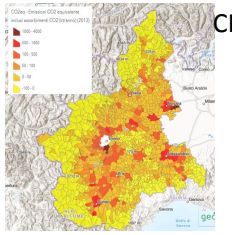
The importance of a function depends by the environmental characteristics
Information to municipal scale should be collected in a dedicated database

Environmental characteristics

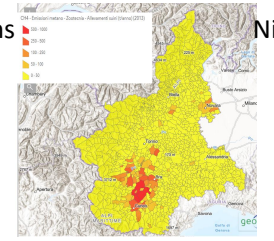
NH_3 Emissions



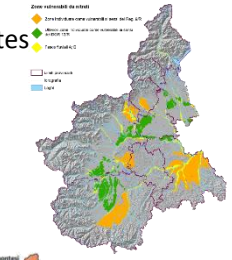
CO_2 Emissions



CH_4 Emissions



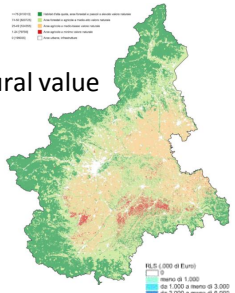
Nitrates



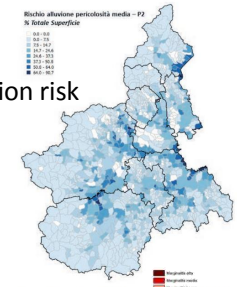
Territorial characteristics

Landscape

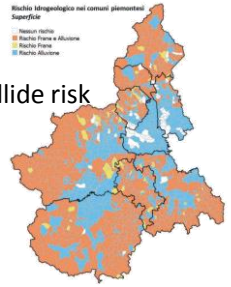
Natural value



Inundation risk

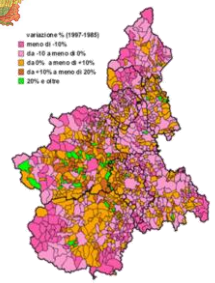


Lansdlide risk

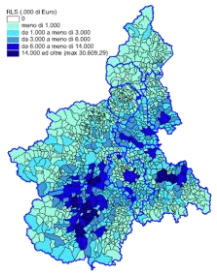


Social-economic characteristics

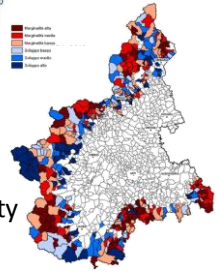
Depopulation



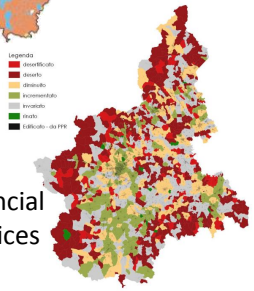
Income



Marginality



Financial services



CLUSTERS EVALUATION

I Sustain — Valutazione Sostenibilità Sistemi Complessi

4 classes of probability (P)

4 classes of severity (S)

16 classes of sustainability relevance

negligible (1; light blue); medium (2-3; green): relevant (4-8; yellow); very relevant (9-16; red)

P - Probability						
	High probability	4	4	8	12	16
	Probable	3	3	6	9	12
	Low probability	2	2	4	6	8
	Not probable	1	1	2	3	4
Level:			1	2	3	4
blue = negligible green = medium yellow = relevant red = very relevant			Light	Medium	Heavy	Very heavy
			S – Severity			

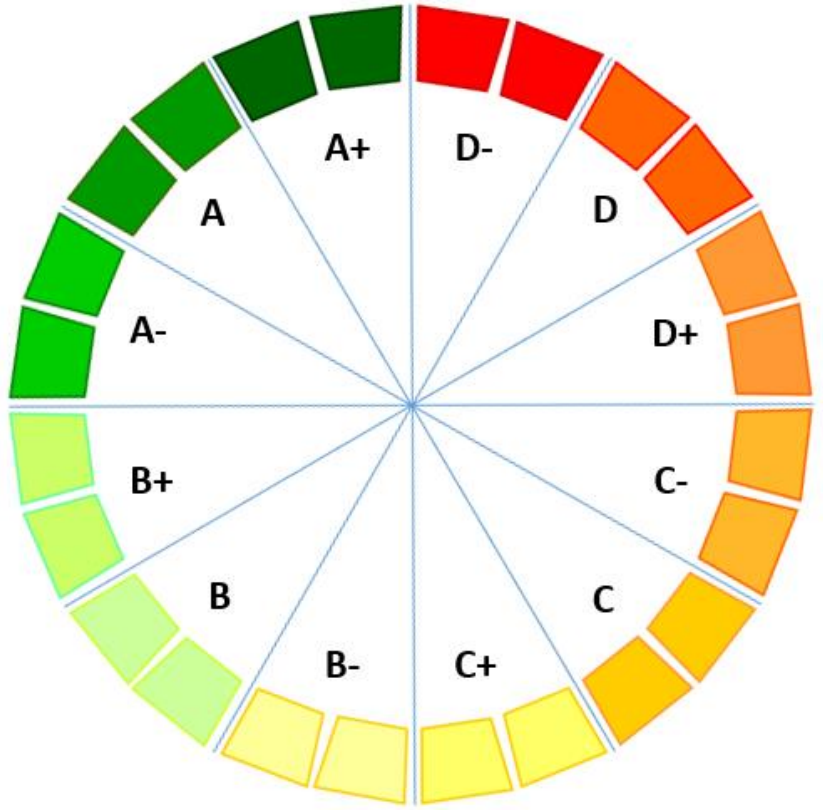
SUSTAINABILITY INDEX CALCULATION AND LABELING

I Sustain — Valutazione Sostenibilità Sistemi Complessi

4 classes (A, B, C, D)

3 sub-classes (+, 0, -)

12 levels of sustainability

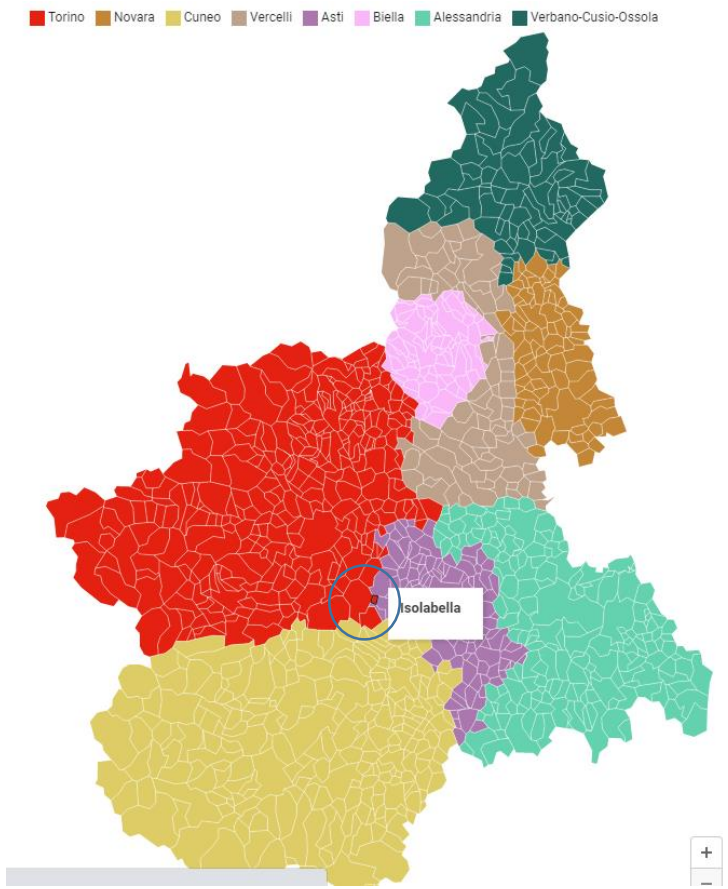


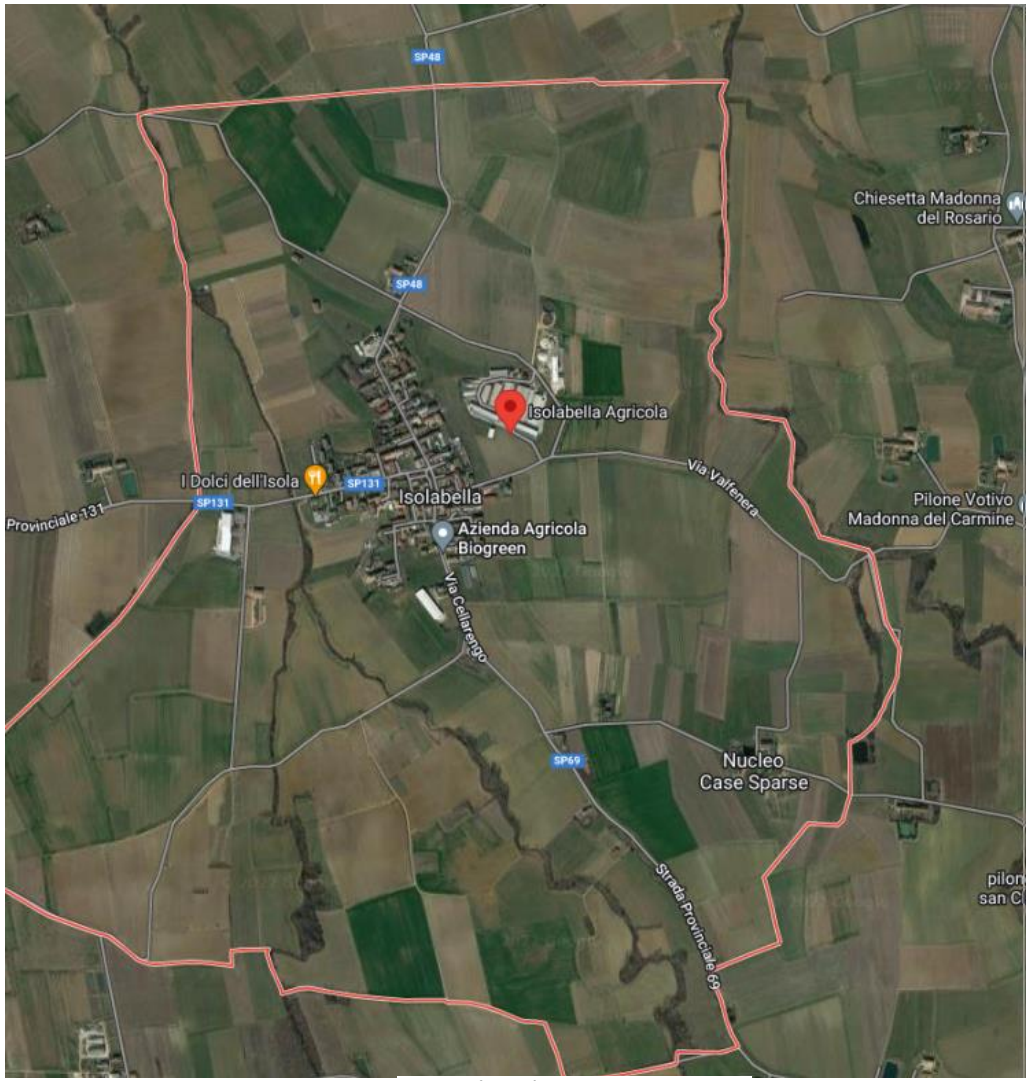
Label to communicate the level of sustainability

EXAMPLE OF AN APPLICATION OF THE I-SUSTAIN METHOD TO THE DAIRY CATTLE SECTOR

FARM CLASSIFICATION AND LOCALIZATION (1)

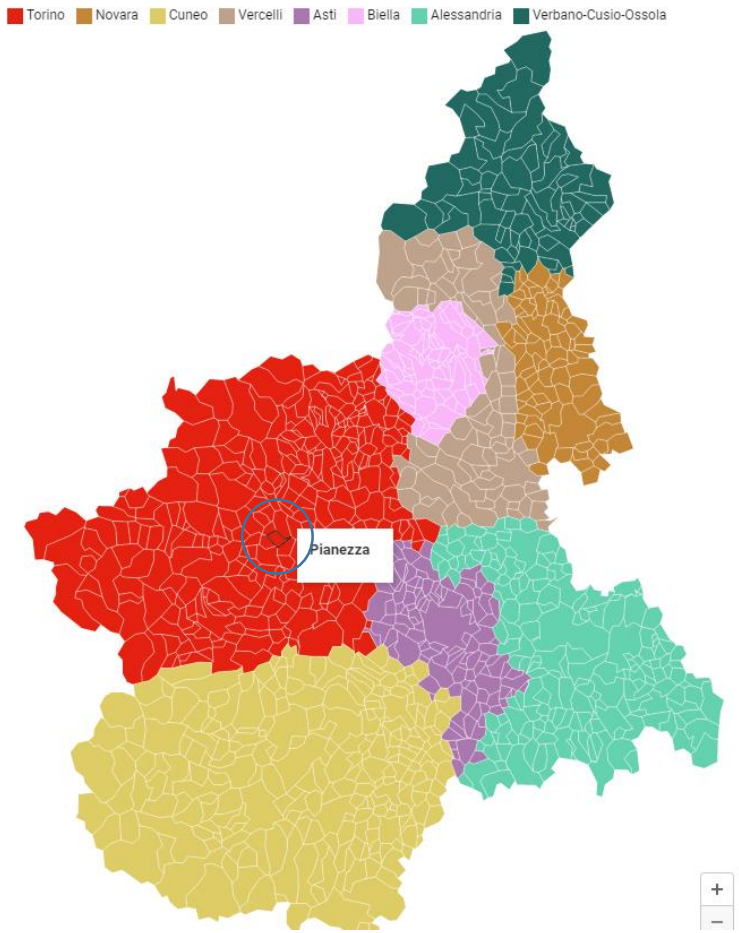
Farm HI-VUL: **H**igh **I**ntensity – **VUL**nerable area

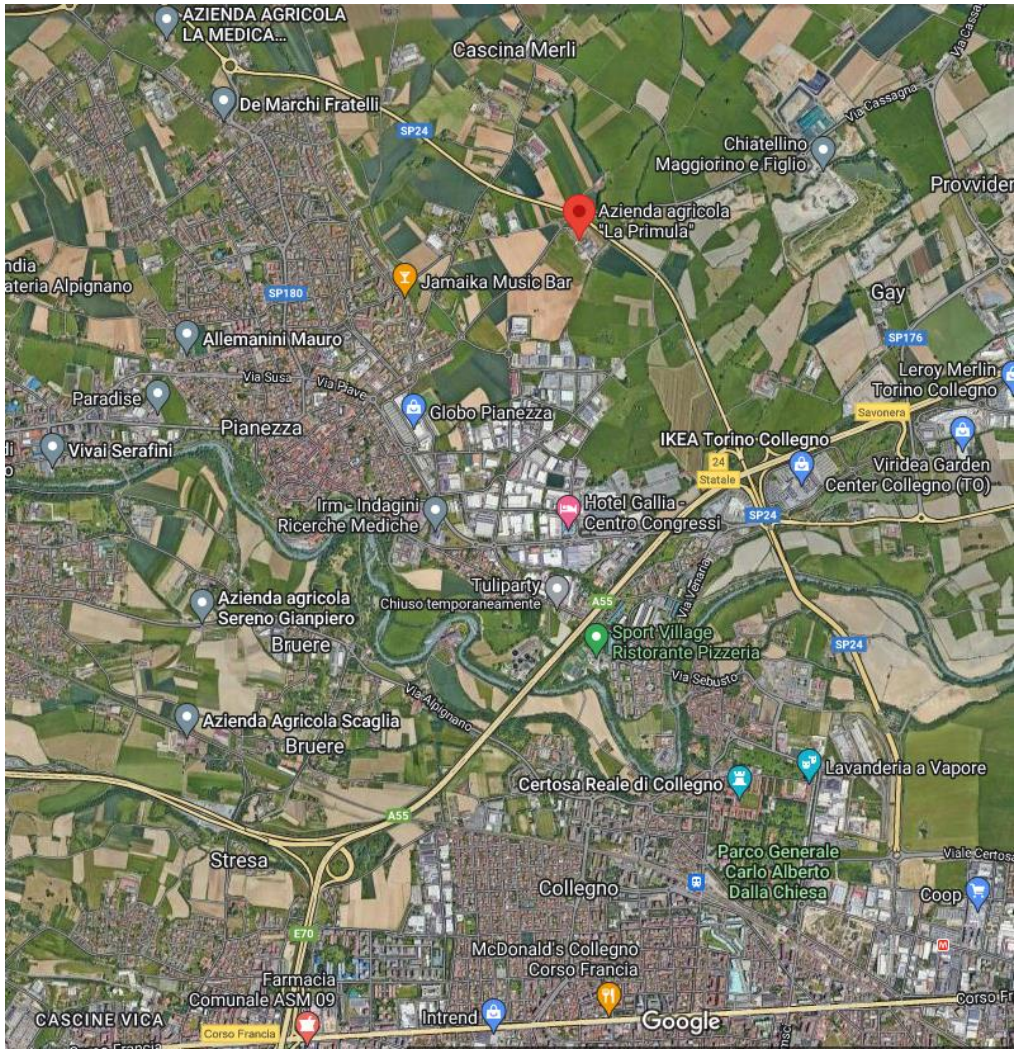




FARM CLASSIFICATION AND LOCALIZATION (2)

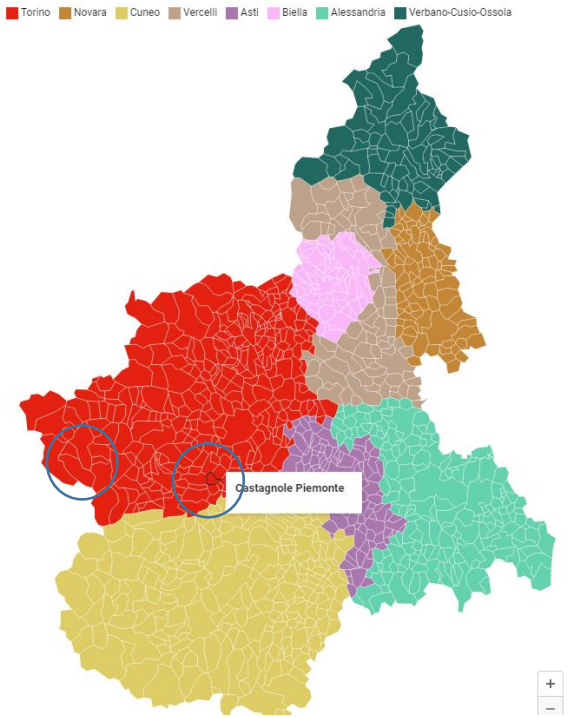
Farm HI-URB: **H**igh **I**ntensity – **URB**anized area

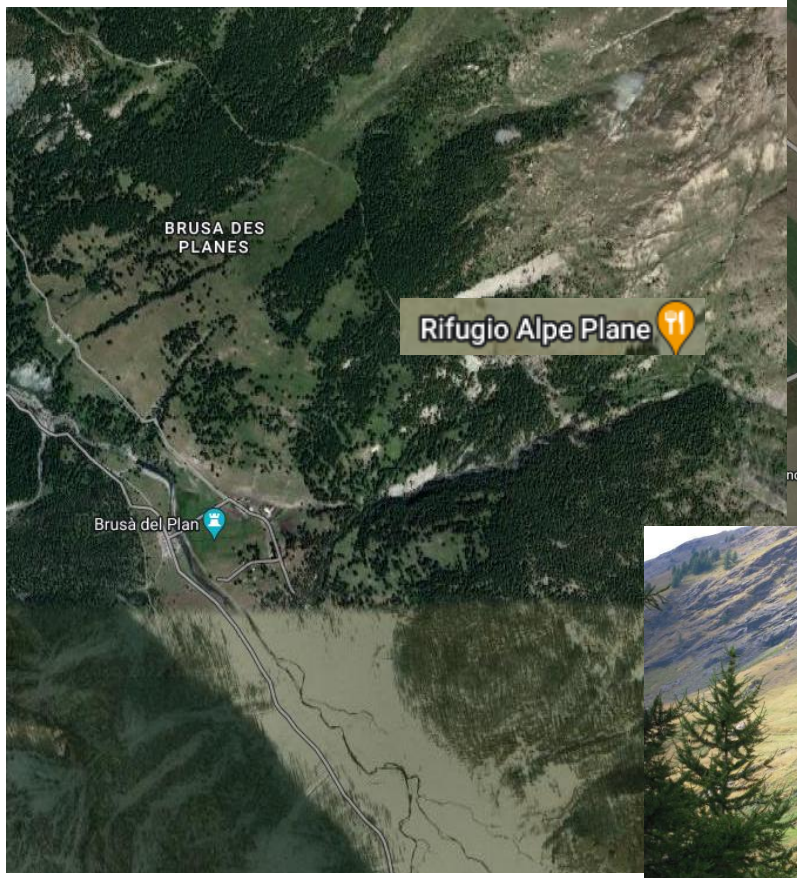


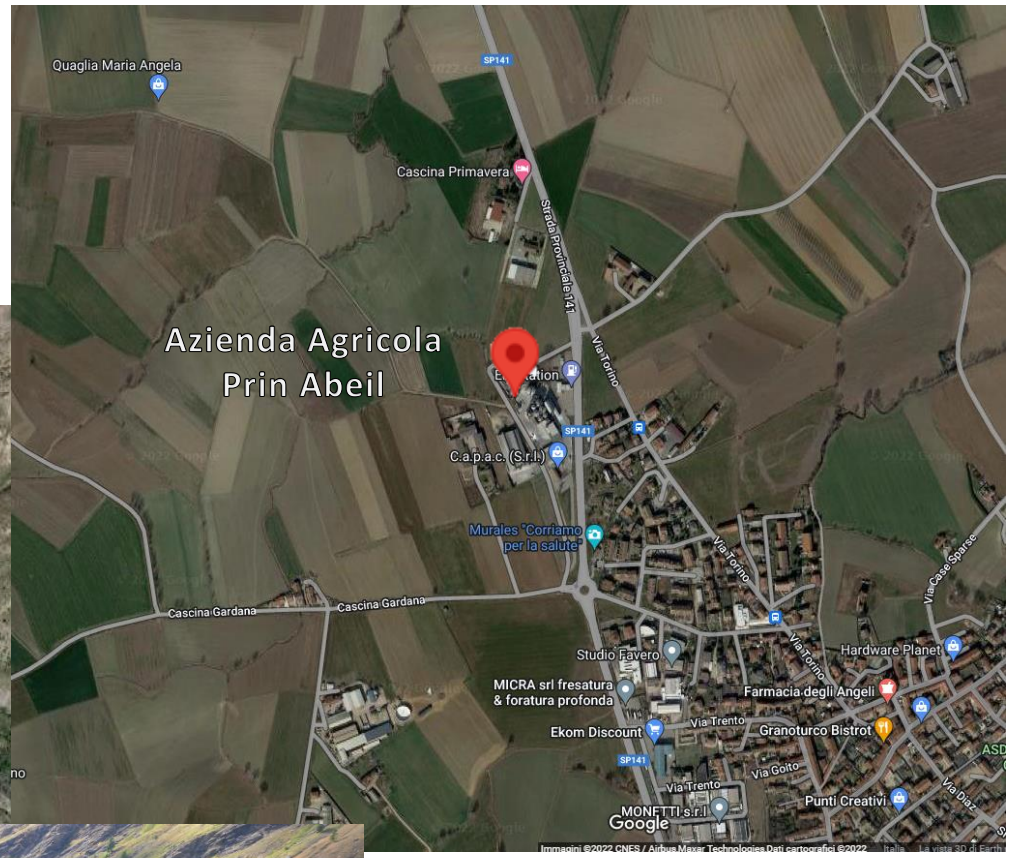


FARM CLASSIFICATION AND LOCALIZATION (3)

Farm LI-MAR: **L**ow **I**ntensity – **M**arginal area





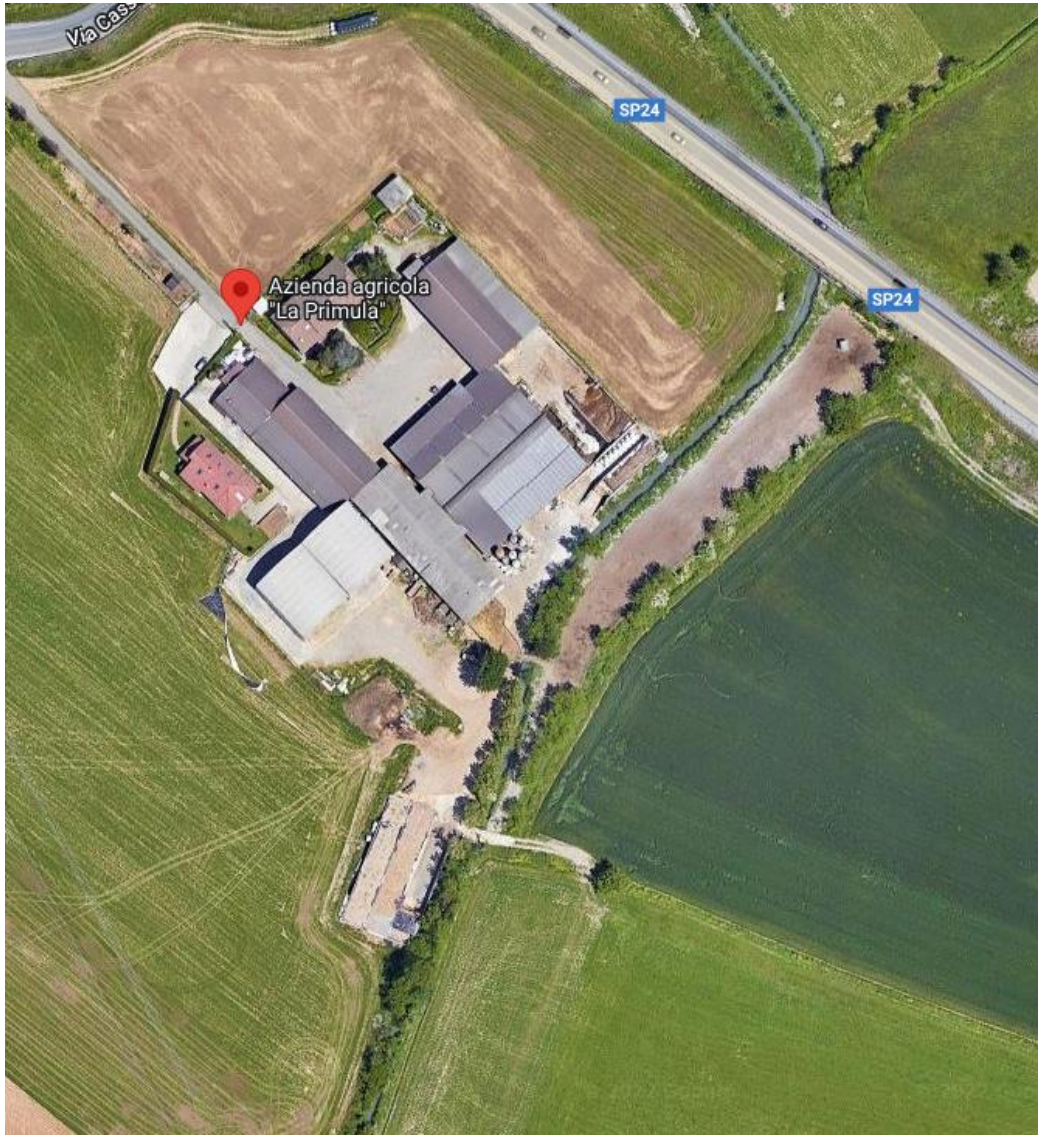


FARM CHARACTERISTICS (1)

Farm HI-VUL characteristics: Intensive dairy farm (High Intensity) located in NVZ (VULnerable area)

AAU (ha)	492
Pasture (ha)	0
Annual crops (ha)	406
Pluriannual crops (ha)	86
Workers (n)	16
Heads (n)	1050
Lactating cows (n)	440
Milk production (kg/d/cow)	35.4
Cheese making	no
Breed(s)	Italian Fresian
LU/ha AAU	1.7
Renewable energy	biomass, solar

FARM CHARACTERISTICS (2)



Farm HI-URB characteristics : Intensive dairy farm in peri-urbanized area (HI-URB)

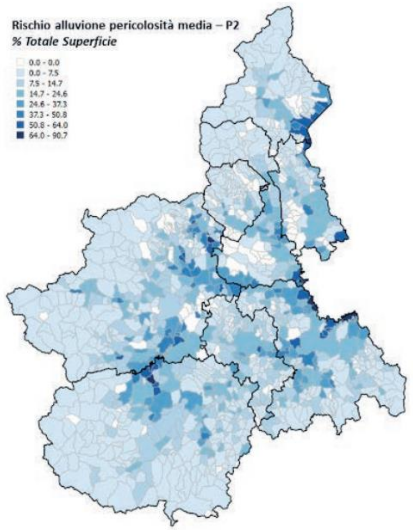
AAU (ha)	57
Pasture (ha)	0
Annual crops (ha)	45
Pluriannual crops (ha)	12
Workers (n)	5
Heads (n)	253
Lactating cows (n)	118
Milk production (kg/d/cow)	36.8
Cheese making	yes
Breed(s)	Italian Fresian
LU/ha AAU	3.5
Renewable energy	solar

FARM CHARACTERISTICS (3)

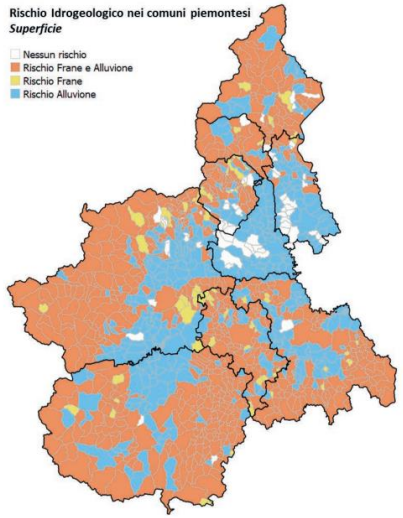
Farm LI-MAR characteristics 3: Extensive dairy farm in marginal area (LI-MAR)

AAU (ha)	27
Pasture (ha)	500
Annual crops (ha)	19
Pluriannual crops (ha)	8
Workers (n)	5
Heads (n)	190
Lactating cows (n)	102
Milk production (kg/d/cow)	15.0
Cheese making	yes
Breed(s)	Barà – Austrian Red Pied
LU/ha AAU	3.0
Renewable energy	solar, hydro

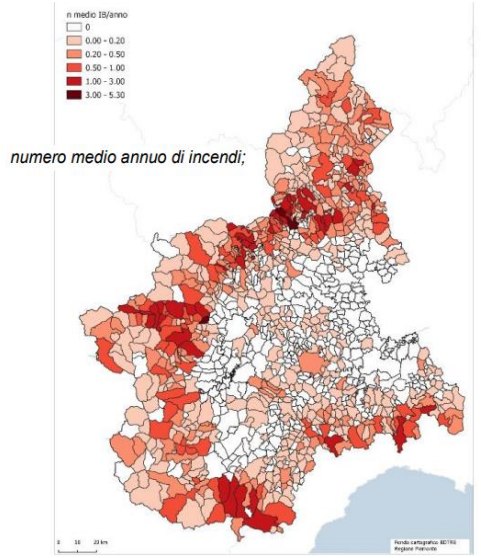
TERRITORIAL INDEXES



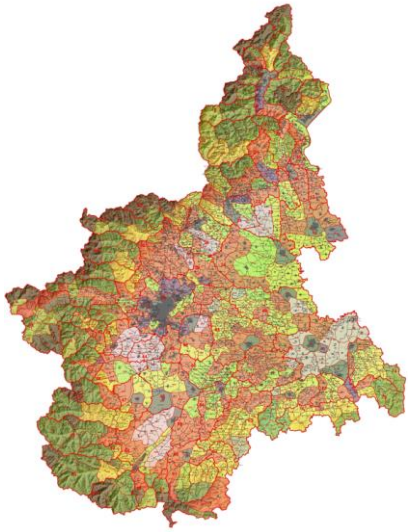
Inundation



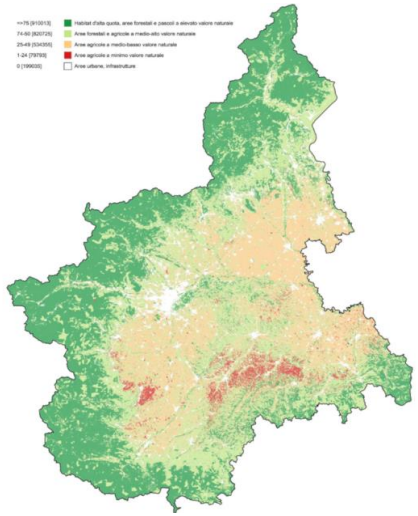
Landslides



Fires

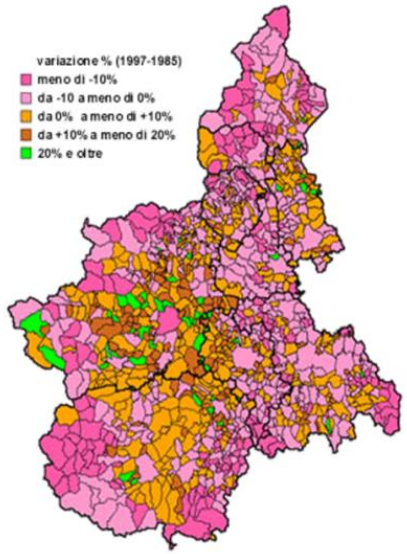


Landscape

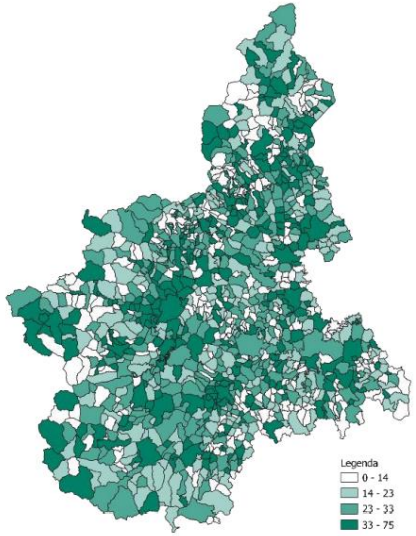


Natural value

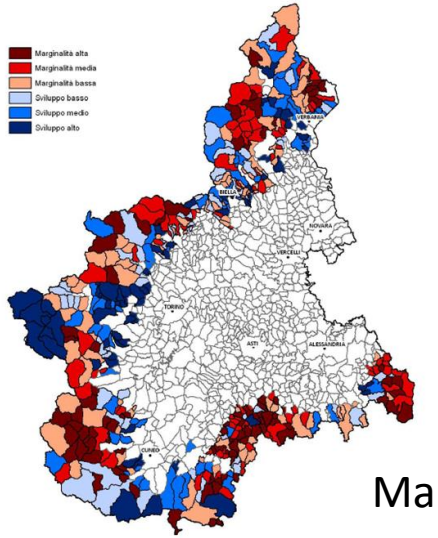
SOCIAL-ECONOMIC INDEXES



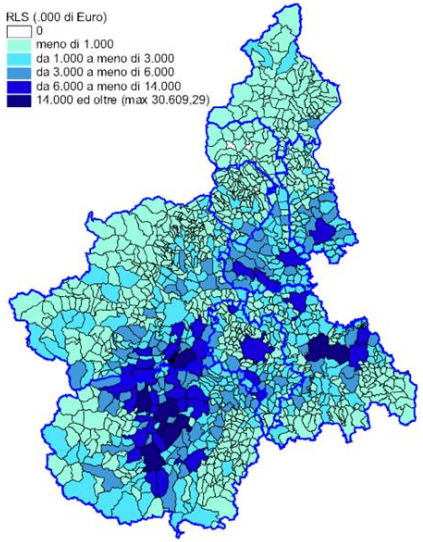
Depopulation ratio



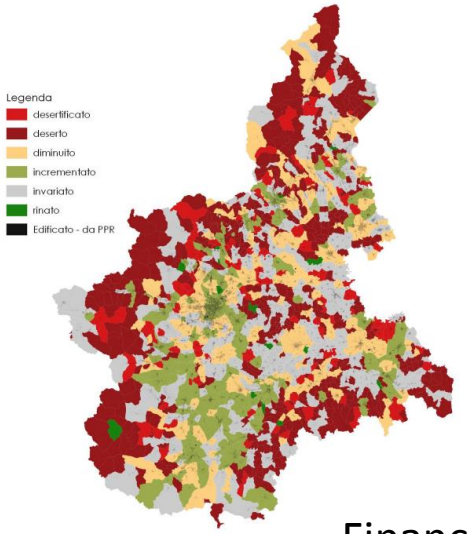
Attraction index



Marginality

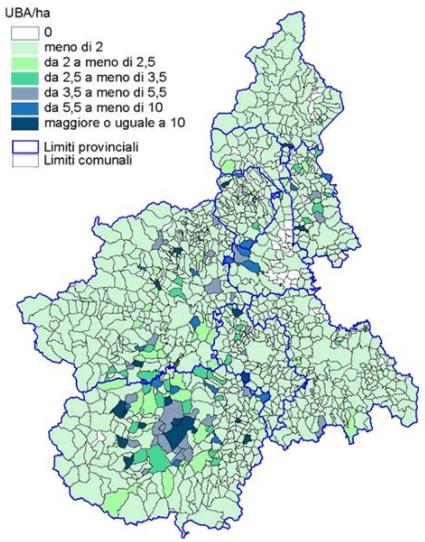


Income

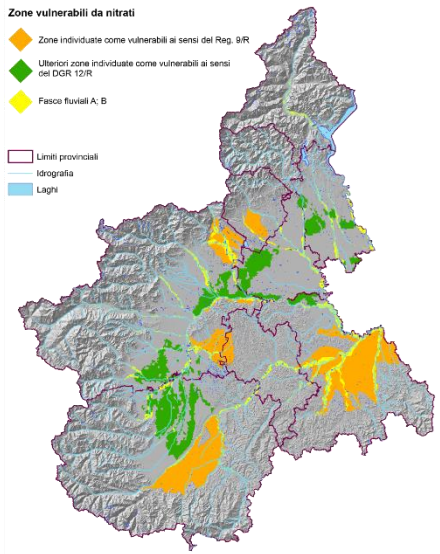


Financial services

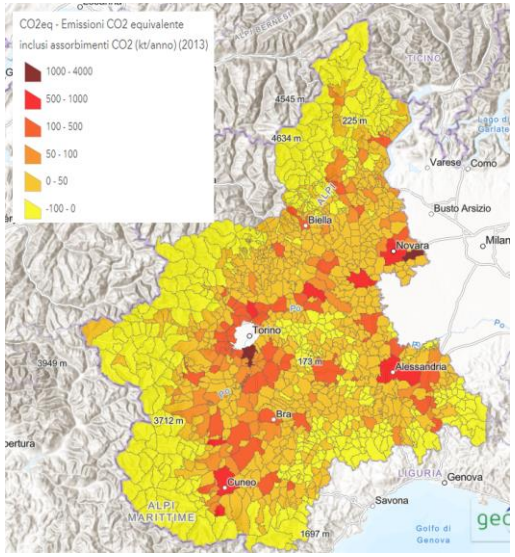
ENVIRONMENTAL INDEXES



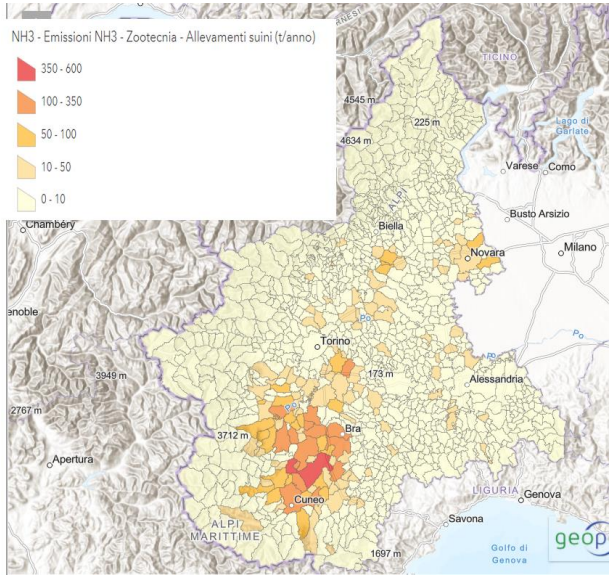
LU/ha



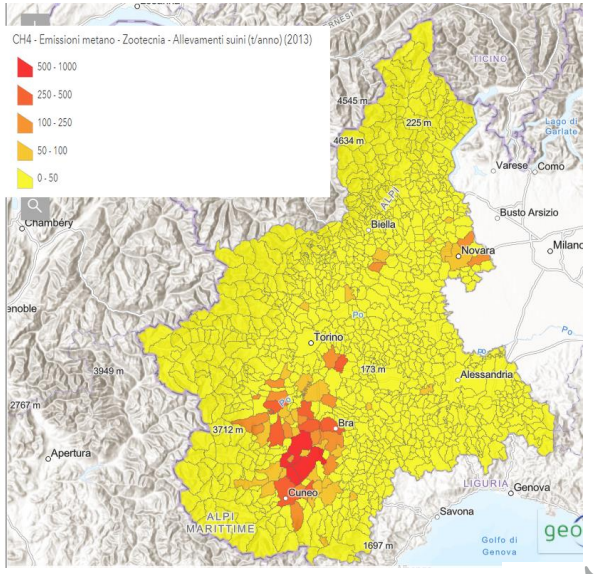
NVZs



CO_2 eq emissions

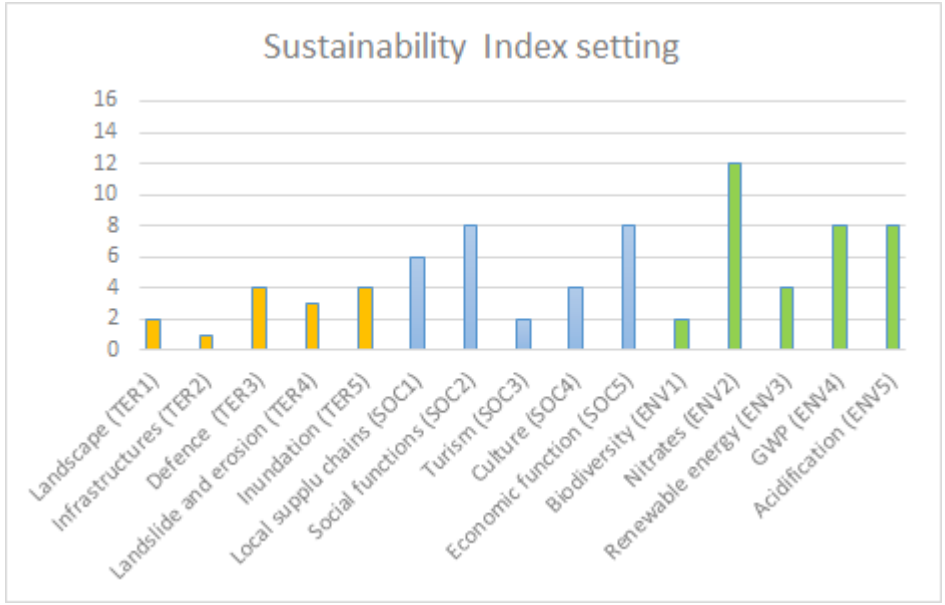


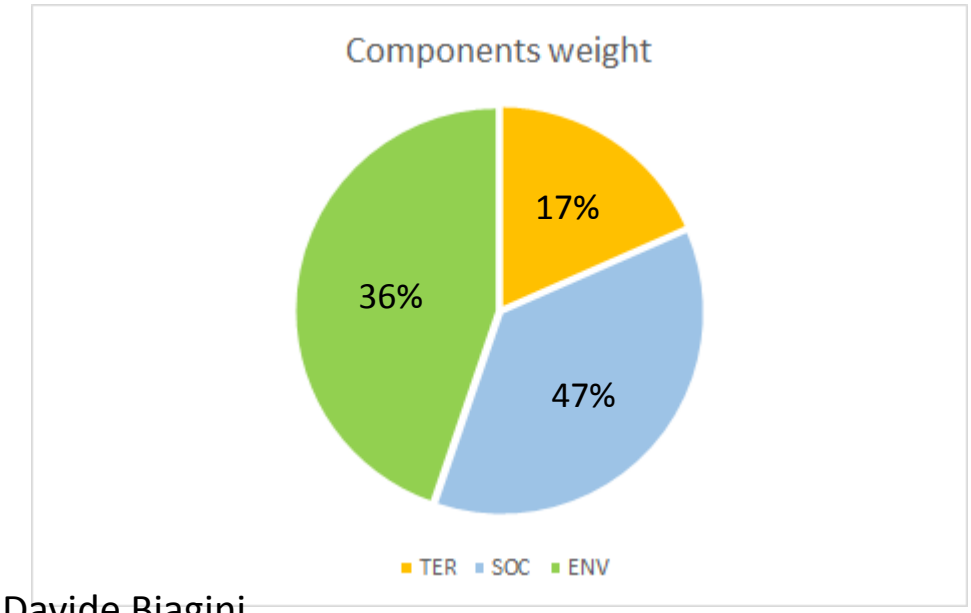
NH_3 emissions

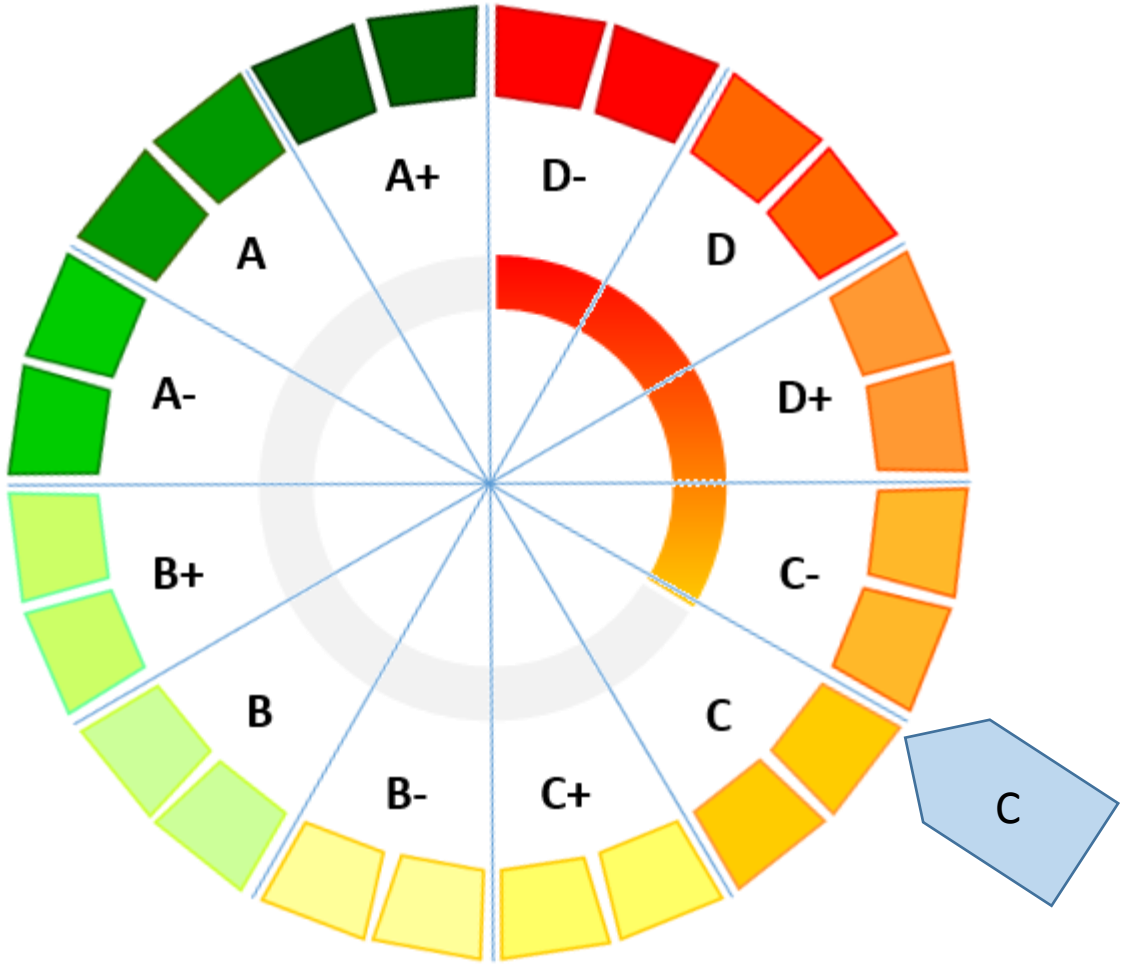


CH_4 emissions

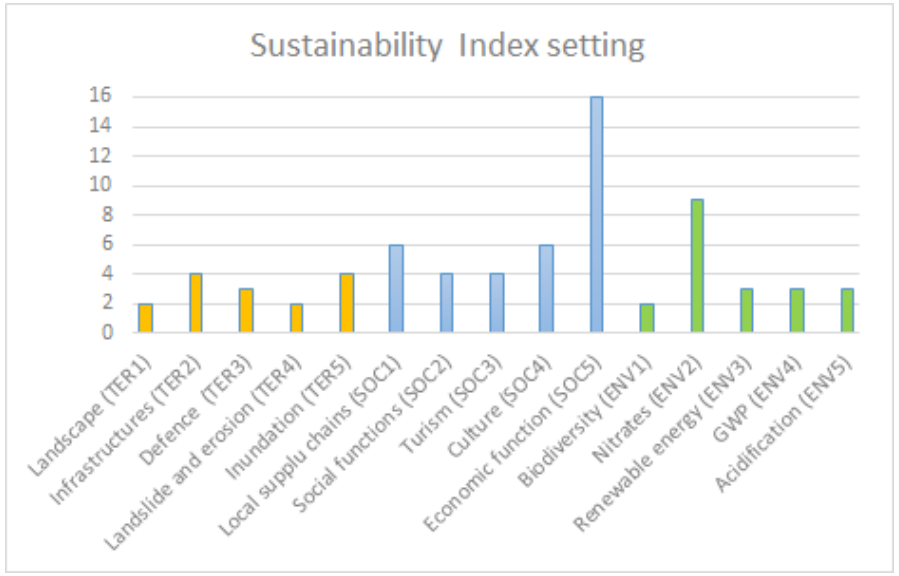
HI-VUL FARM


Sustainability Index setting
16
14
12
10
8
6
4
2
0
Landscape (TER1)
Infrastructures (TER2)
Defence (TER3)
Landslide and erosion (TER4)
Inundation (TER5)
Local supplu chains (SOC1)
Social functions (SOC2)
Turism (SOC3)
Culture (SOC4)
Economic function (SOC5)
Biodiversity (ENV1)
Nitrates (ENV2)
Renewable energy (ENV3)
GWP (ENV4)
Acidification (ENV5)


Components weight
17%
36%
47%
TER
SOC
ENV


A+
D-
A
D
A-
D+
B+
C-
B
C
B-
C+
C

HI URB FARM


Sustainability Index setting
16
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12
10
8
6
4
2
0
Landscape (TER1)
Infrastructures (TER2)
Defence (TER3)
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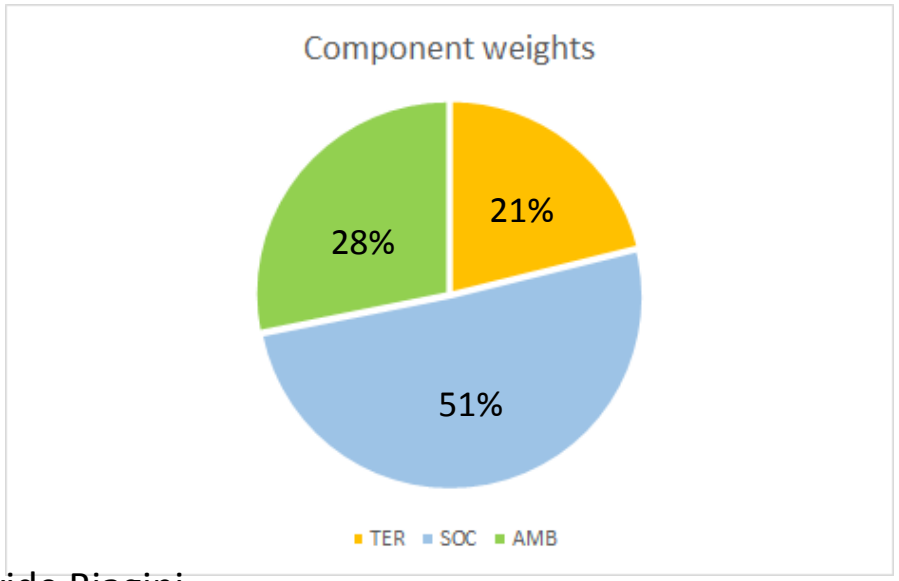
Biodiversity (ENV1)
Nitrates (ENV2)
Renewable energy (ENV3)
GWP (ENV4)
Acidification (ENV5)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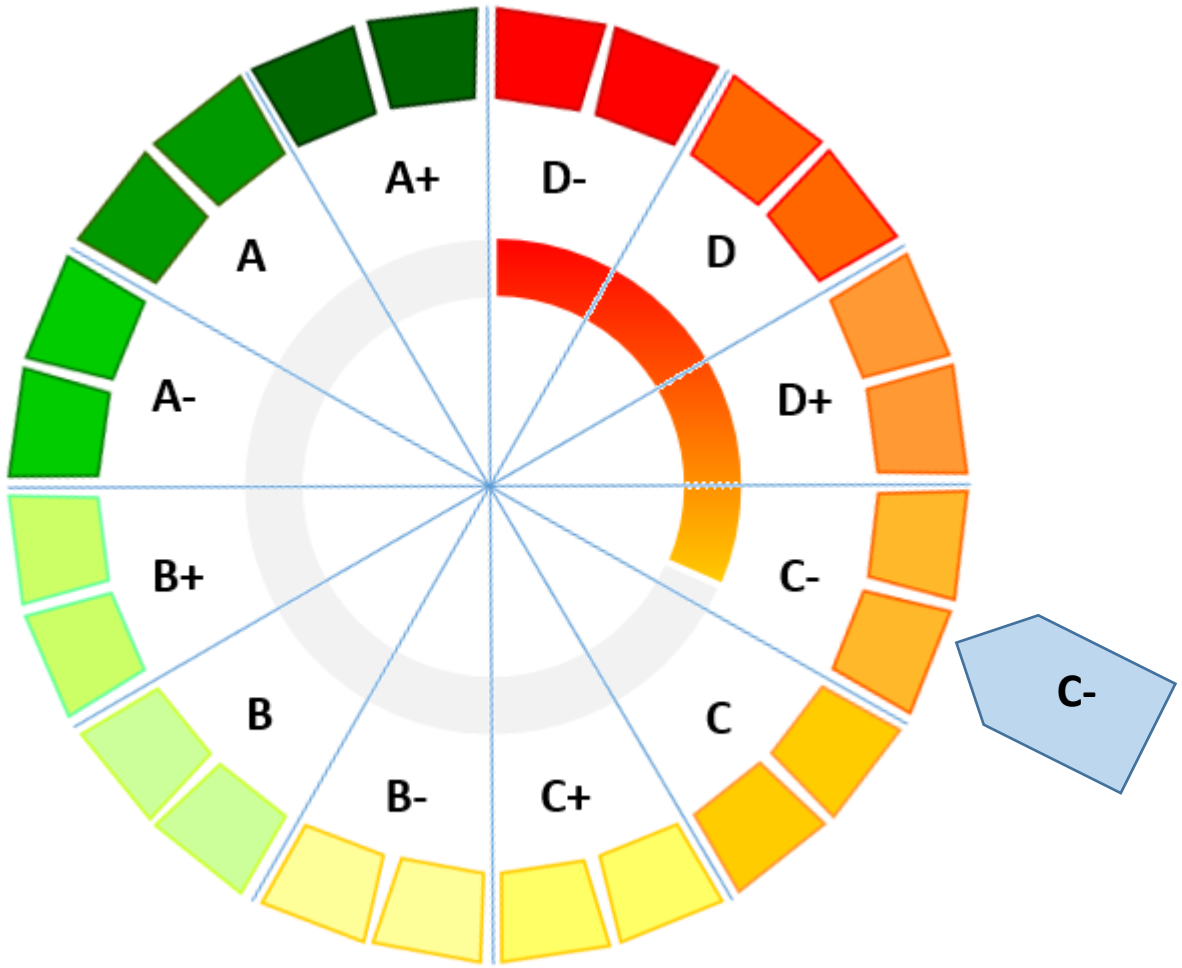
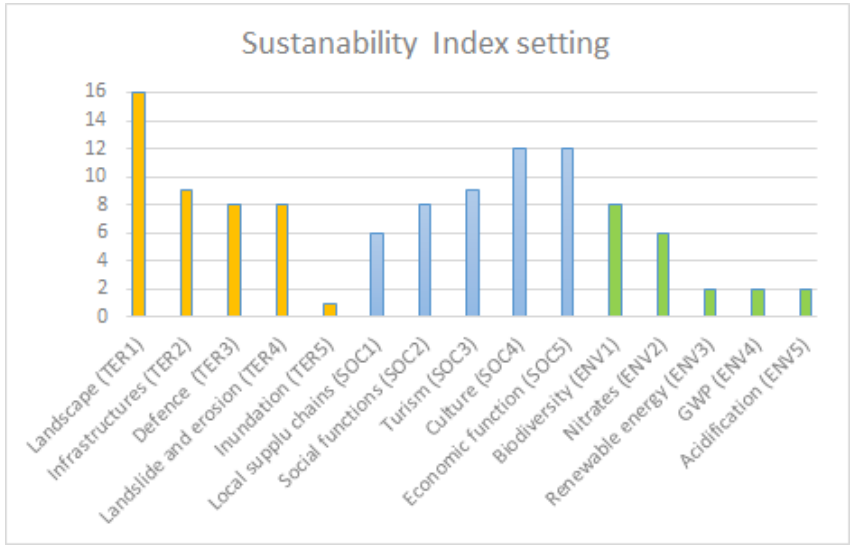
28%
51%
TER
SOC
AMB


A+
D-
A
D
A-
D+
B+
C-
B
C
B-
C+
C-

LI-MAR FARM


Sustanability Index setting
16
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Landscape (TER1)
Infrastructures (TER2)
Defence (TER3)
Landslide and erosion (TER4)
Inundation (TER5)
Local supplu chains (SOC1)
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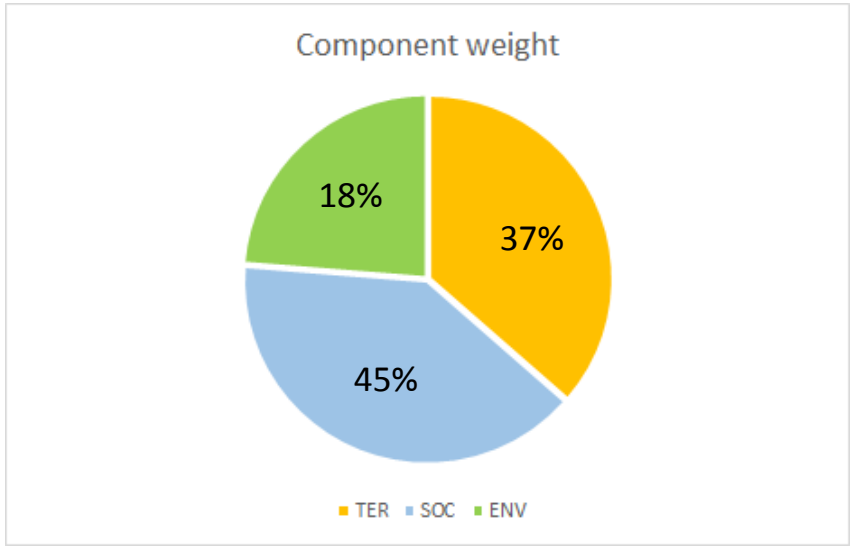
Turism (SOC3)
Culture (SOC4)
Economic function (SOC5)
Biodiversity (ENV1)
Nitrates (ENV2)
Renewable energy (ENV3)
GWP (ENV4)
Acidification (ENV5)


Component weight
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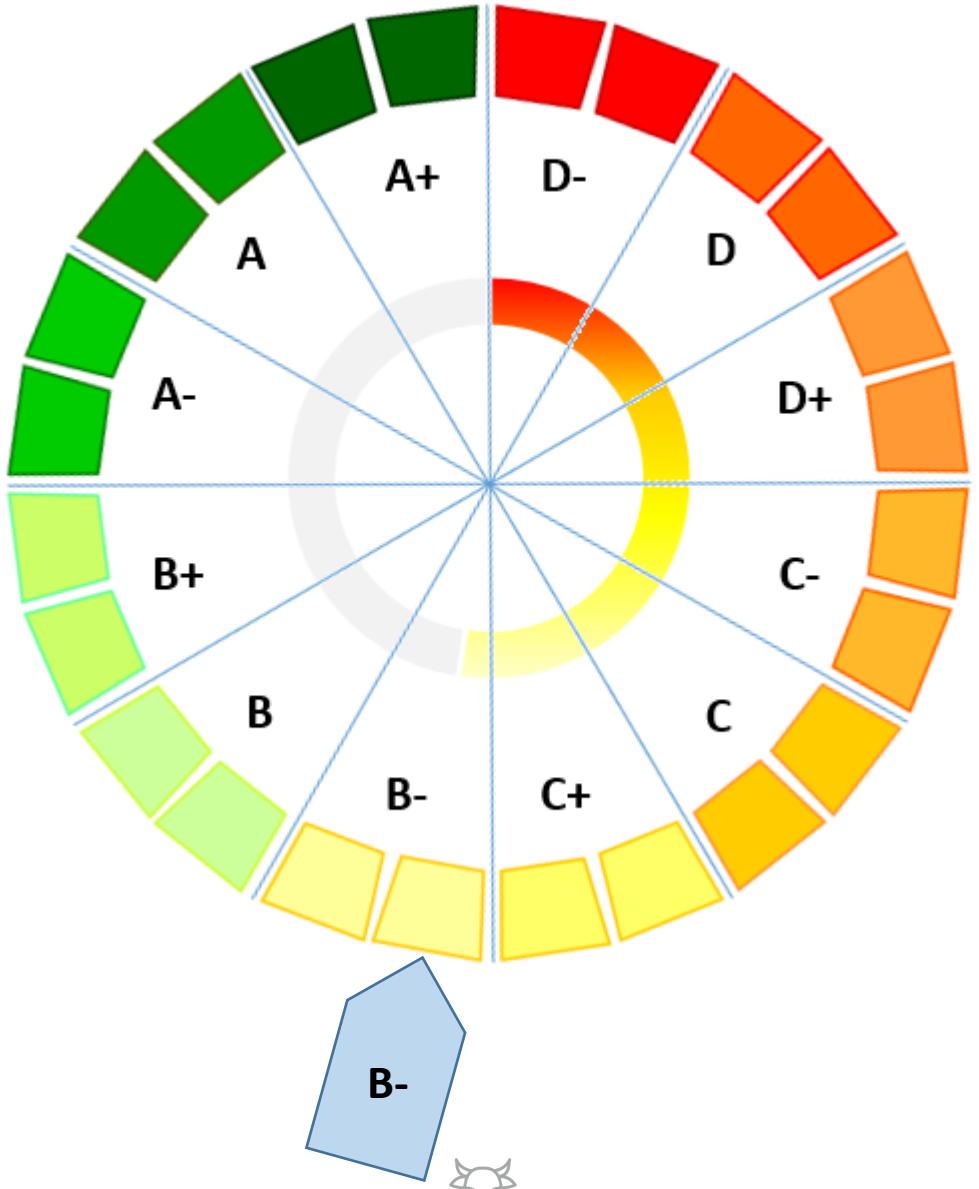
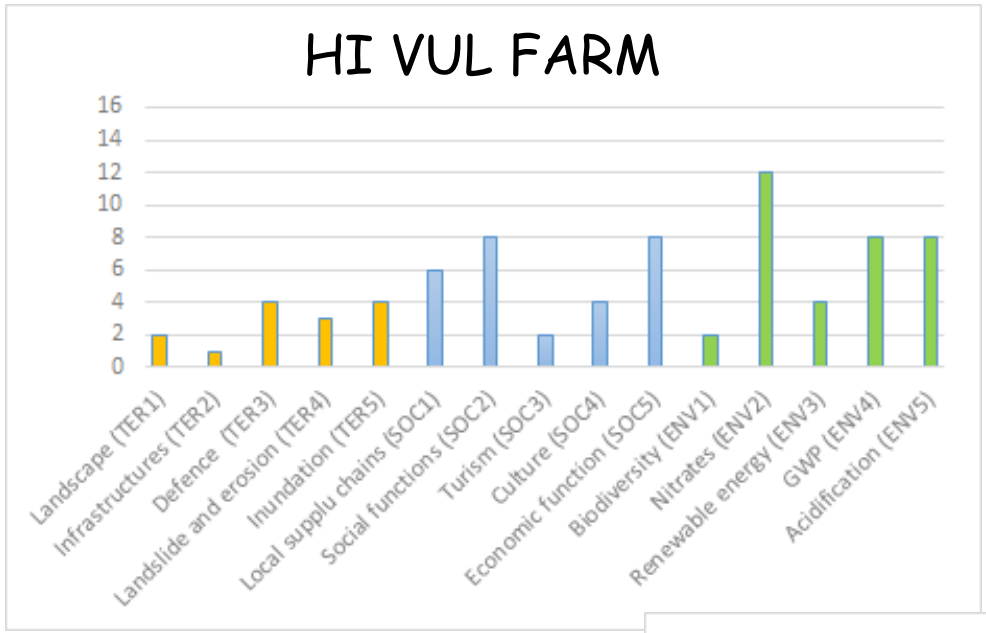
37%
45%
TER
SOC
ENV


A+
D-
D
A
D+
A-
C-
B+
C
B
C+
B-
B-

COMPARISON


HI VUL FARM
16
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0
Landscape (TER1)
Infrastructures (TER2)
Defence (TER3)
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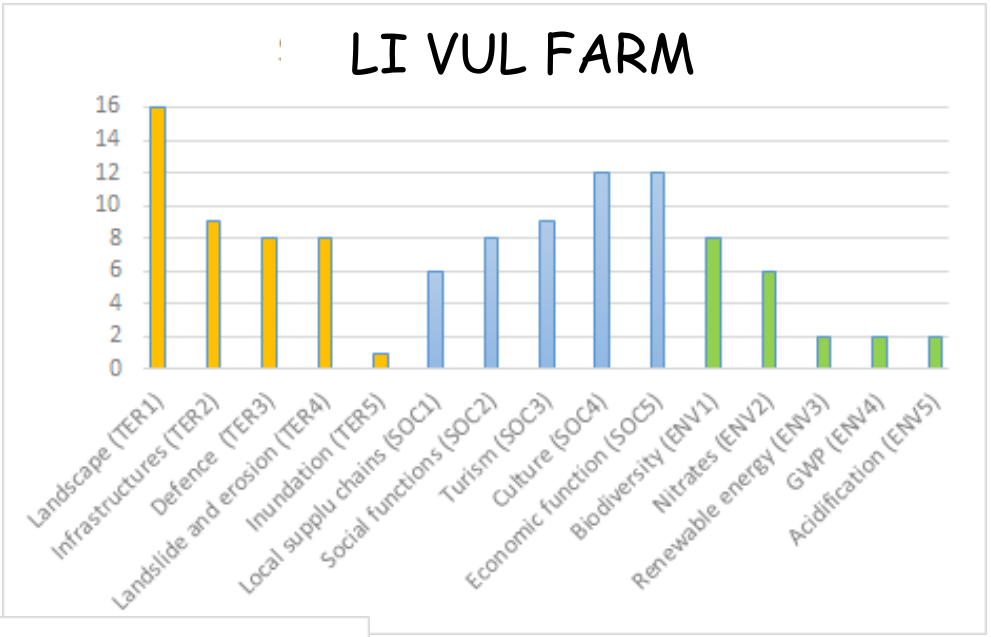
Nitrates (ENV2)
Renewable energy (ENV3)
GWP (ENV4)
Acidification (ENV5)


LI VUL FARM
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Landscape (TER1)
Infrastructures (TER2)
Defence (TER3)
Landslide and erosion (TER4)
Inundation (TER5)
Local supplu chains (SOC1)
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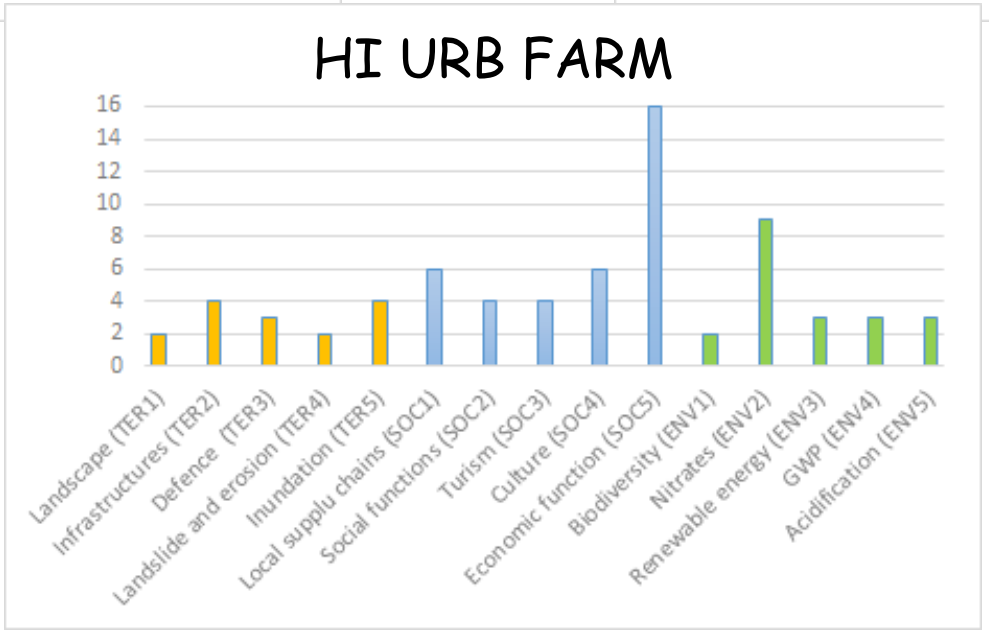
Culture (SOC4)
Economic function (SOC5)
Biodiversity (ENV1)
Nitrates (ENV2)
Renewable energy (ENV3)
GWP (ENV4)
Acidification (ENV5)


HI URB FARM
16
14
12
10
8
6
4
2
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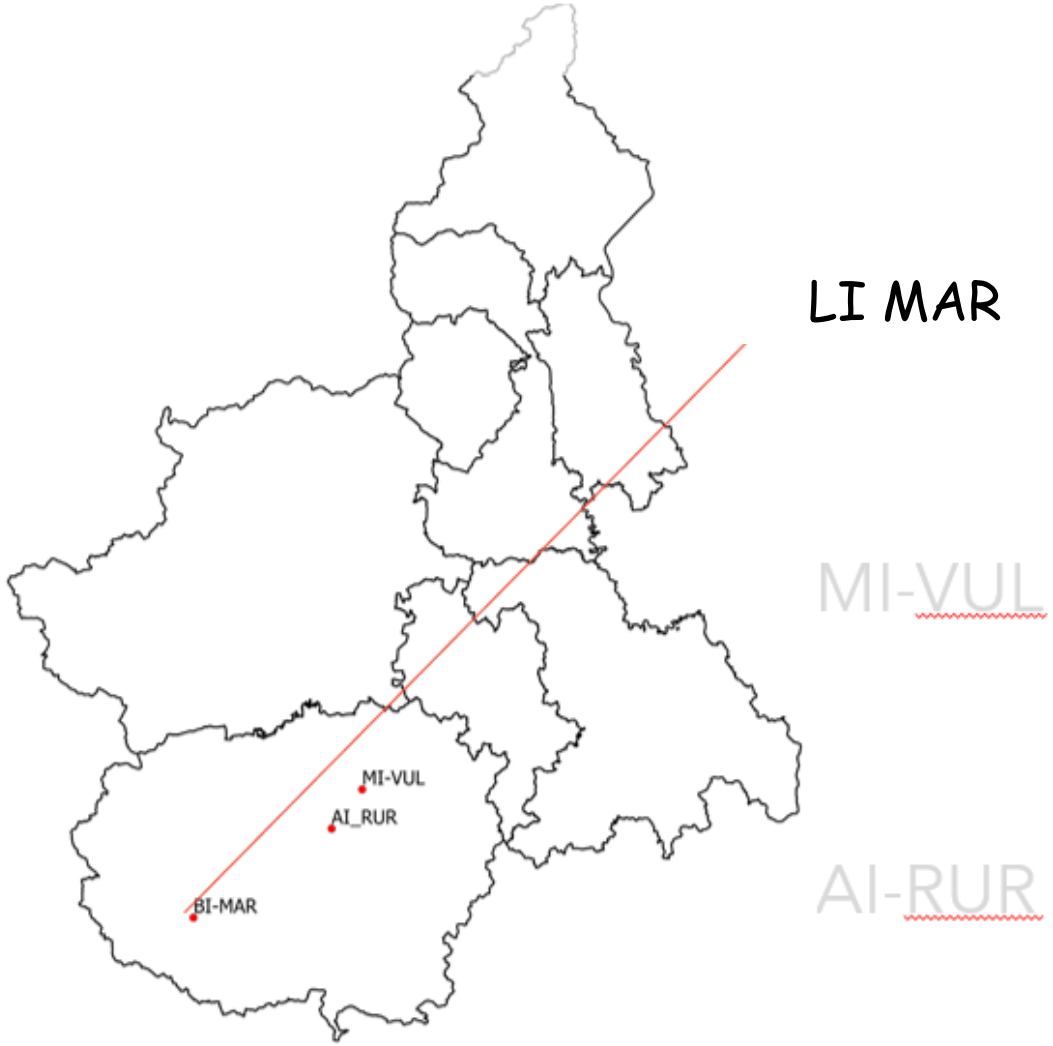
Landscape (TER1)
Infrastructures (TER2)
Defence (TER3)
Landslide and erosion (TER4)
Inundation (TER5)
Local supplu chains (SOC1)
Social functions (SOC2)
Turism (SOC3)
Culture (SOC4)
Economic function (SOC5)
Biodiversity (ENV1)
Nitrates (ENV2)
Renewable energy (ENV3)
GWP (ENV4)
Acidification (ENV5)

EXAMPLE OF AN APPLICATION OF THE I-SUSTAIN METHOD TO THE BEEF CATTLE SECTOR (PIEMONTESE BREED)

FARM CLASSIFICATION AND LOCALIZATION (1)



LI MAR

MI-VUL

AI-RUR

Characteristics

- Zona marginale → Demonte (CN)
- 32 ha + 334 ha
- Prato permanente
- 260 capi
- Ingrasso: Fieno + mangime
- Rimonta: Fieno/Erba + mangime
- 90% reimpiego
- 23.100 kg PV

FARM CLASSIFICATION AND LOCALIZATION (2)

BI-MAR

MI VUL

AI-RUR

Characteristics

- Azienda in ZVN → Fossano (CN)
- 37 ha
- Cereali e prati avvicendati
- 270 capi
- Ingrasso: Fieno + mangime
- Rimonta: Fieno/Erba + silomais
- 91% reimpiego
- 45.100 kg PV

FARM CLASSIFICATION AND LOCALIZATION (3)

BI-MAR

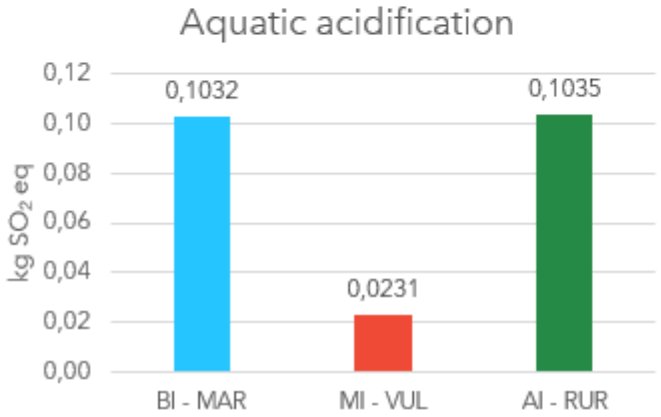
MI-VUL

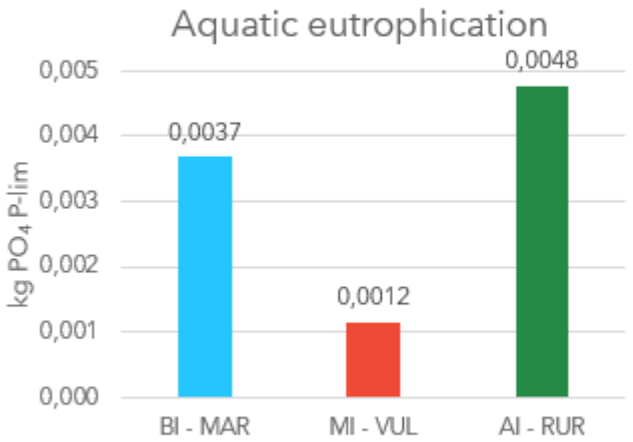
HI RUR

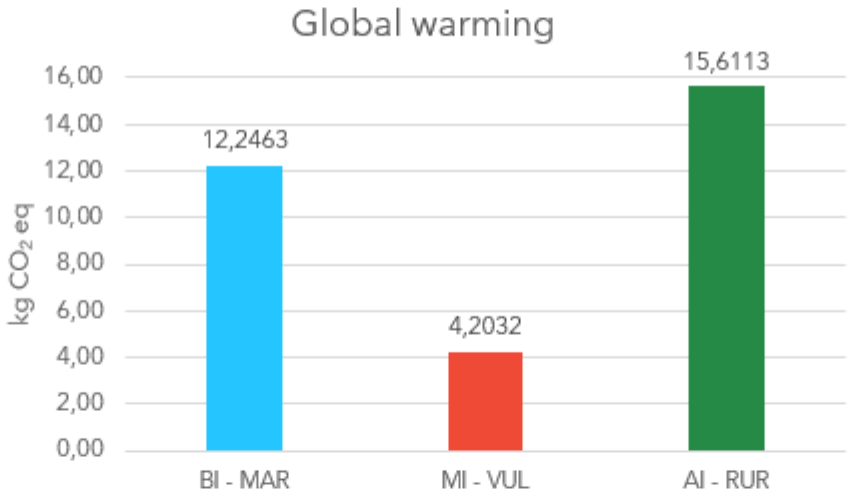
Characteristics

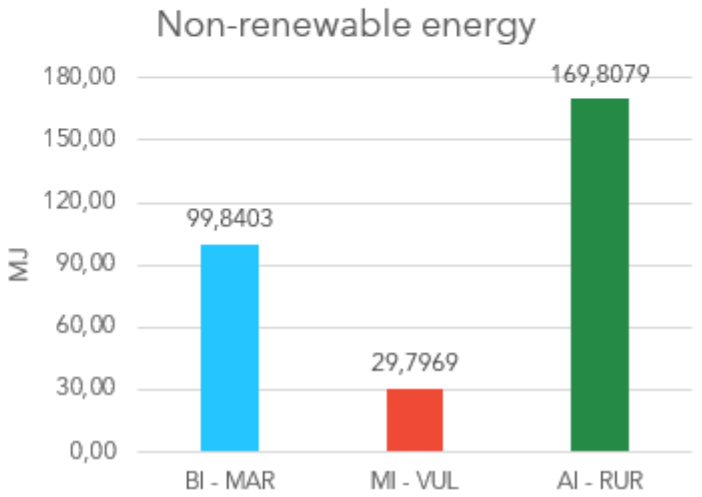
- Zona rurale → Cervere (CN)
- 86 ha
- Cereali e prati avvicendati
- 340 capi
- Ingrasso: Fieno + pastone + mangime
- Rimonta: Fieno/Erba + insilato
- 61% reimpiego
- 58.500 kg PV

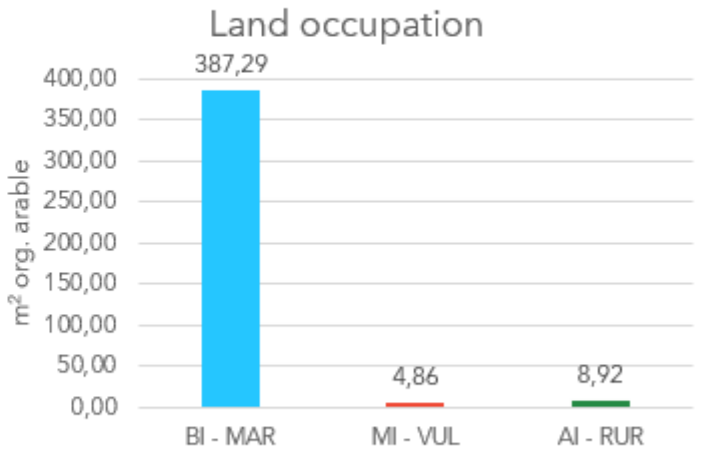
Life Cycle Assessment





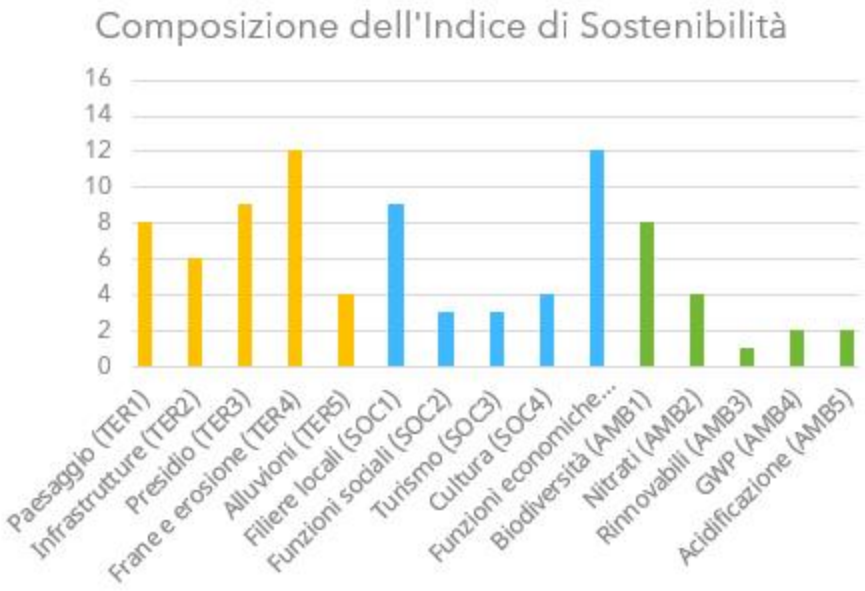


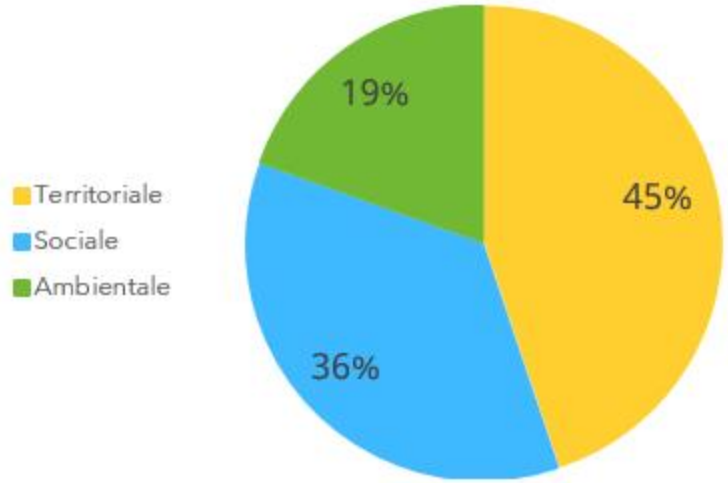


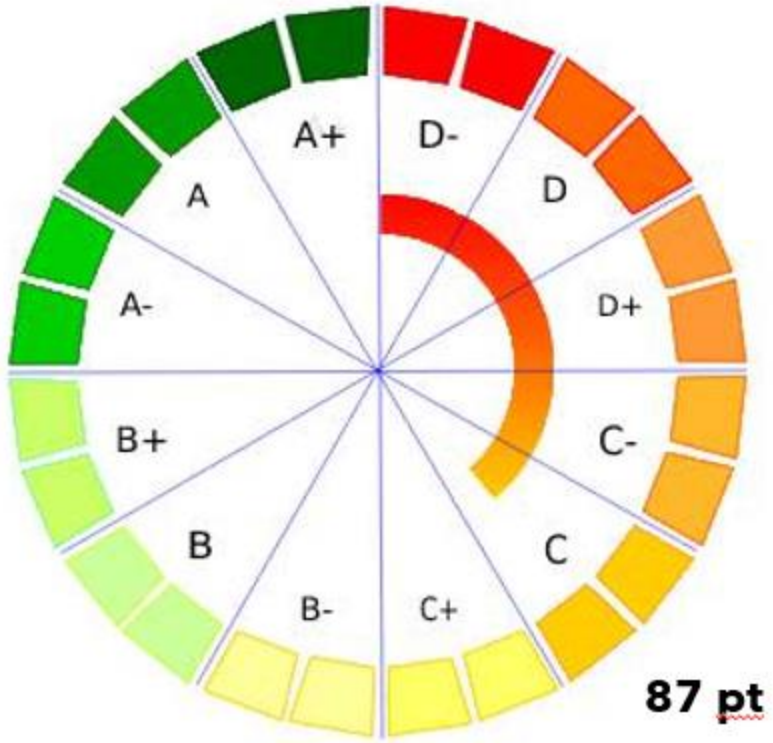


LI-MAR FARM

- BI-MAR
- MI-VUL
- AI-RUR

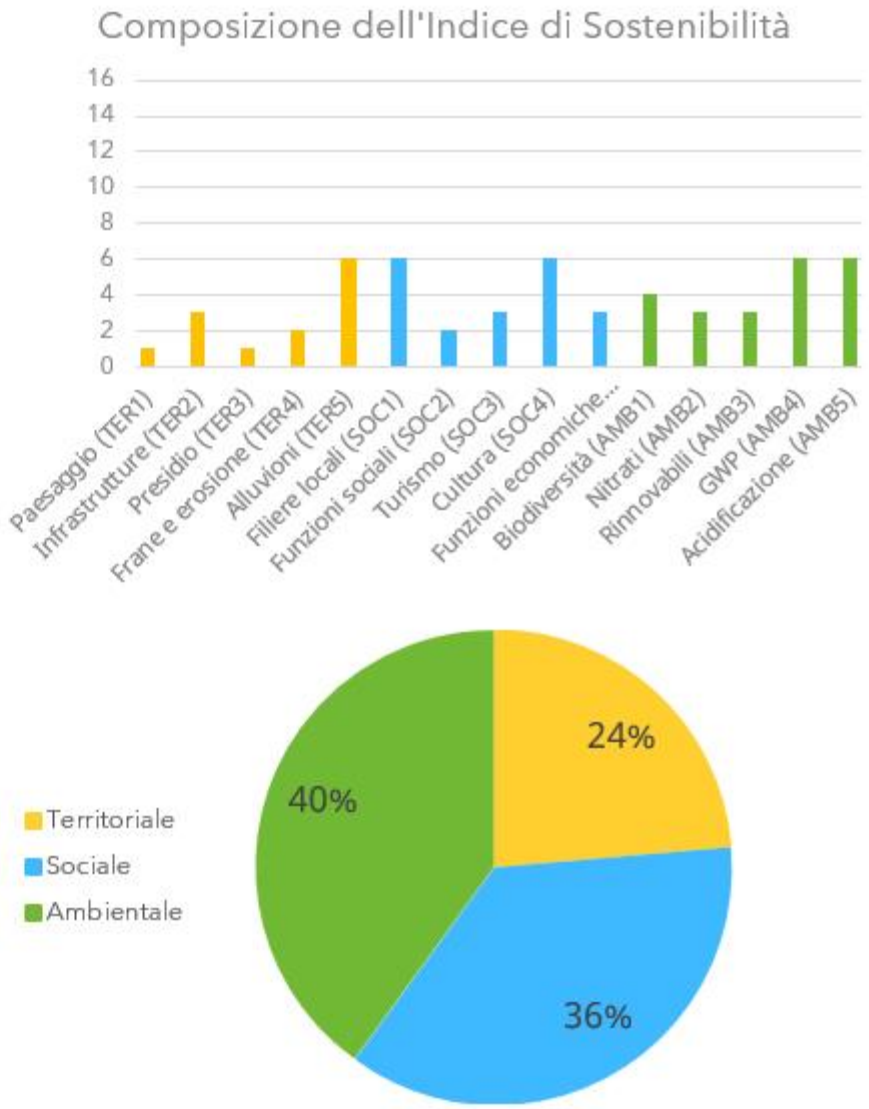


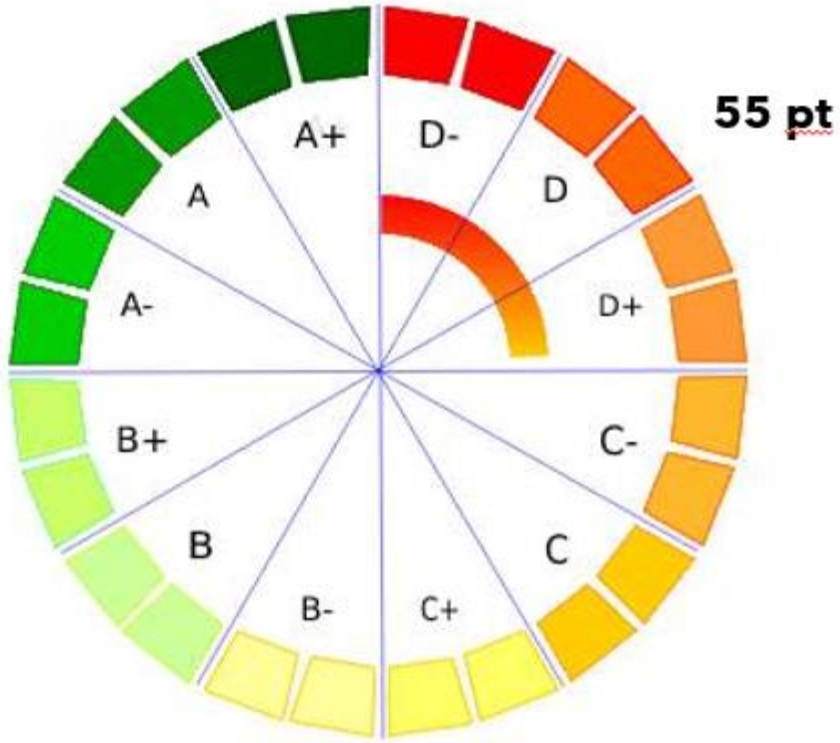




MI-VUL FARM

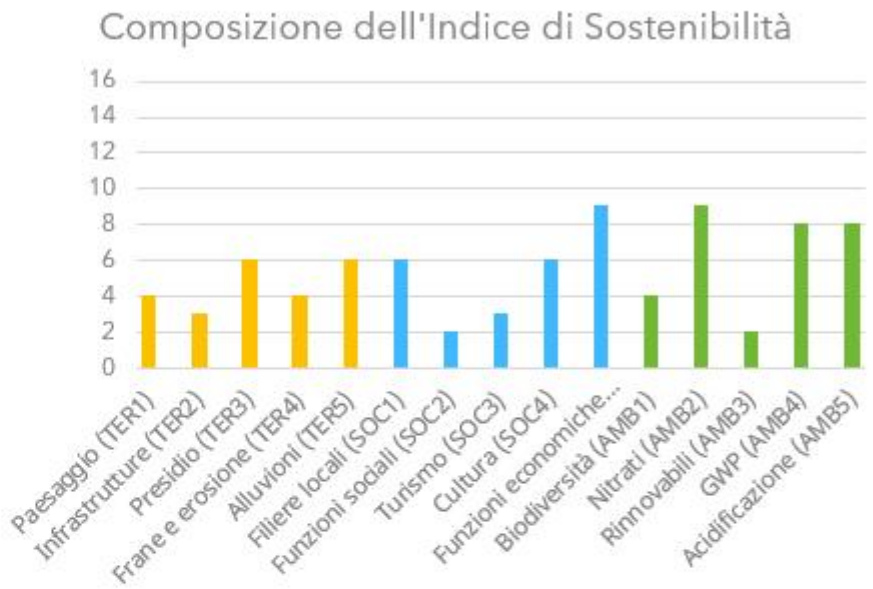
- BI-MAR
- MI-VUL
- AI-RUR

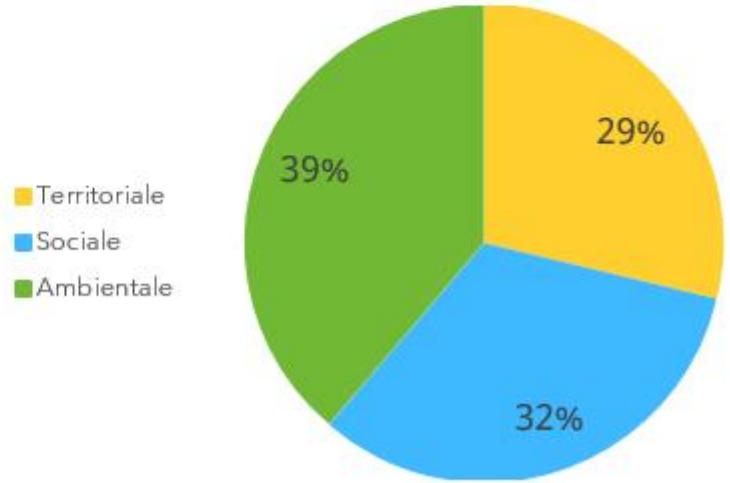


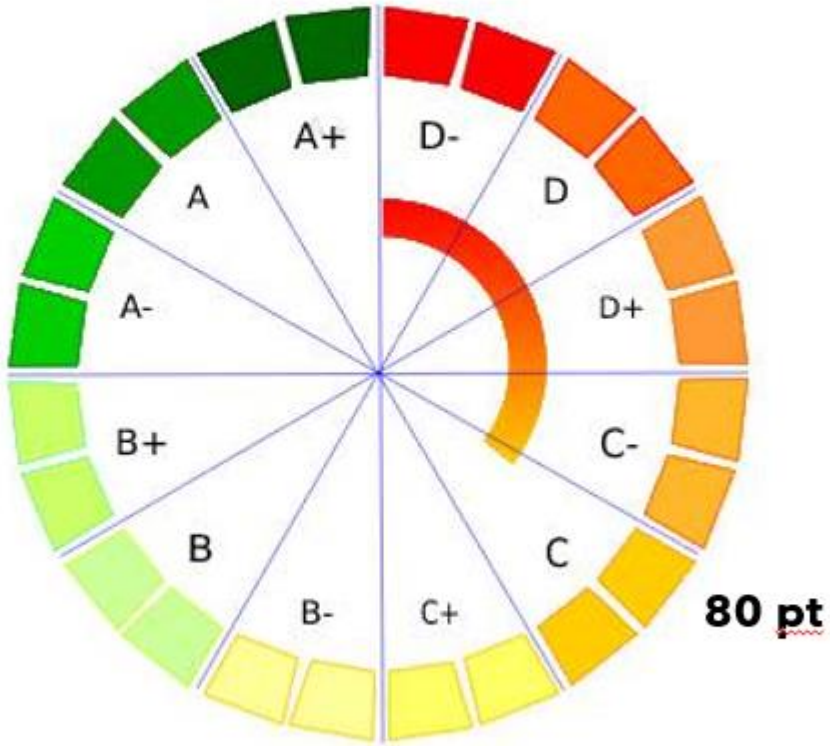


HI-RUR FARM

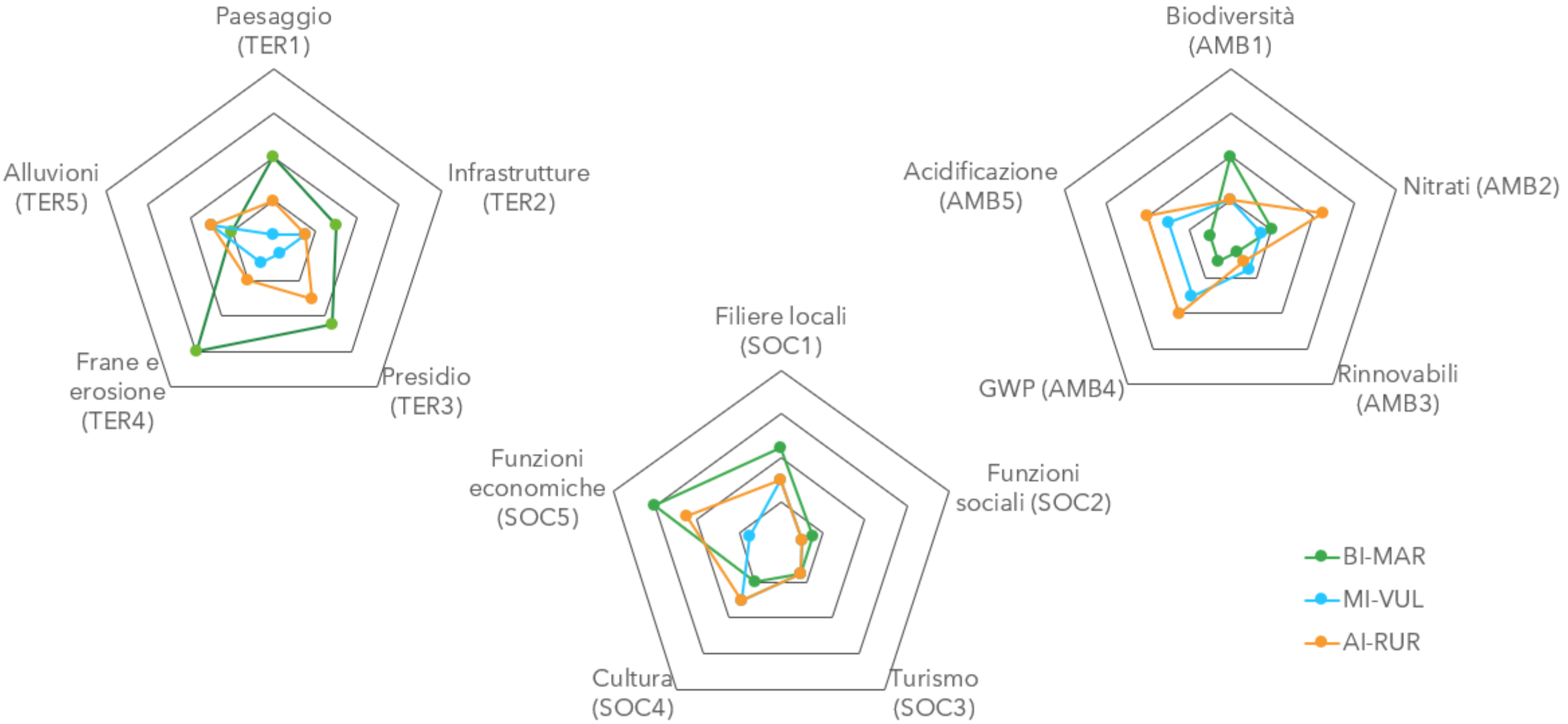
- BI-MAR
- MI-VUL
- AI-RUR





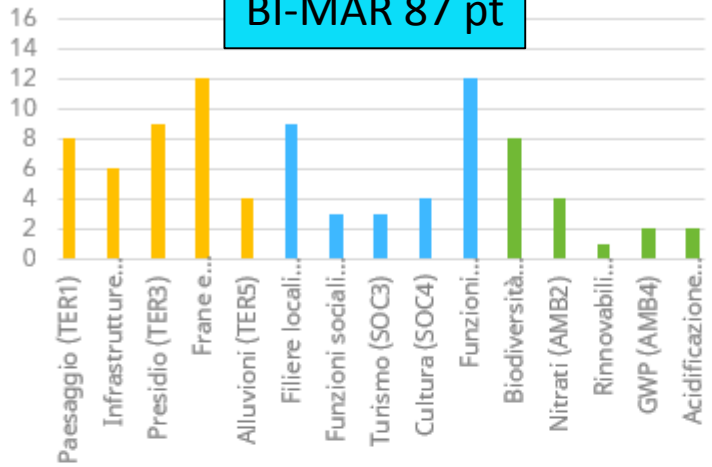


COMPARISON

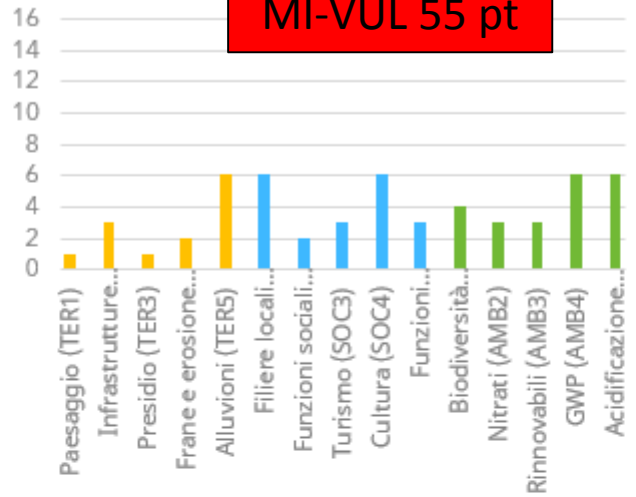

Paesaggio (TER1)
Infrastrutture (TER2)
Presidio (TER3)
Frane e erosione (TER4)
Alluvioni (TER5)
Biodiversità (AMB1)
Nitrati (AMB2)
Rinnovabili (AMB3)
GWP (AMB4)
Acidificazione (AMB5)
Filiere locali (SOC1)
Funzioni sociali (SOC2)
Turismo (SOC3)
Cultura (SOC4)
Funzioni economiche (SOC5)
BI-MAR
MI-VUL
AI-RUR

COMPARISON RESULTS I-SUSTAIN VS LCA

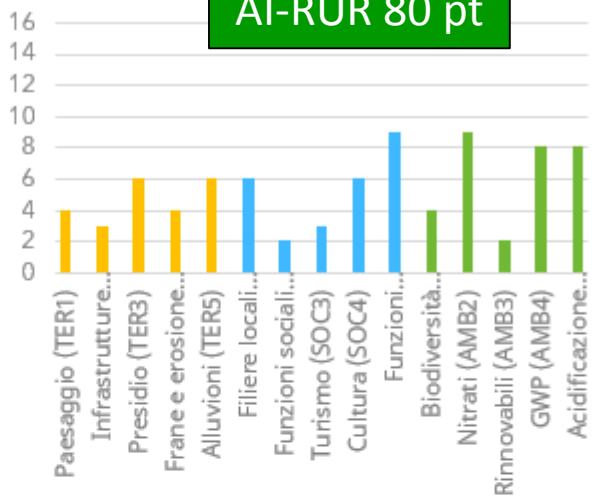
BI-MAR 87 pt

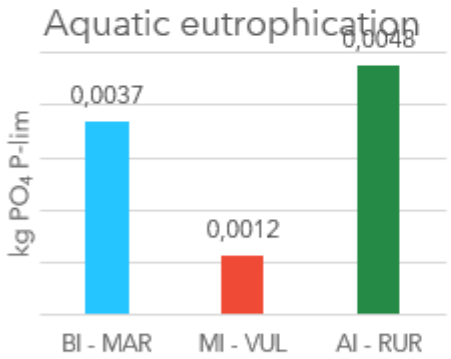


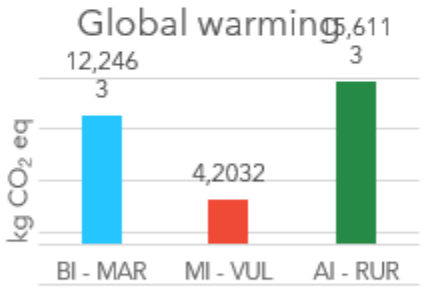
MI-VUL 55 pt

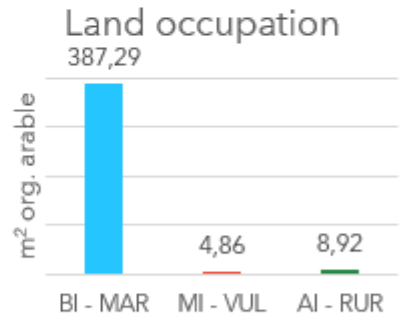


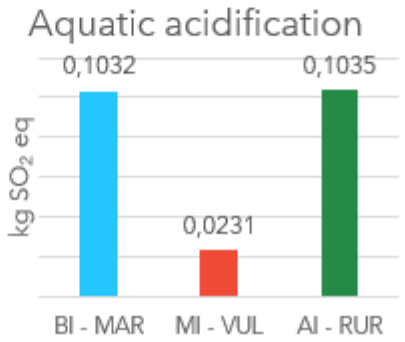
AI-RUR 80 pt

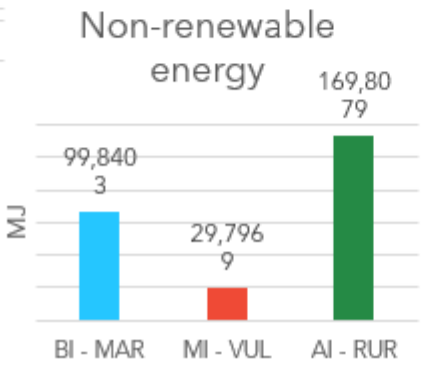












FARM CLASSIFICATION I-SUSTAIN VS LCA

	LCA	I-SUSTAIN
Highest sustainability	MI-VUL	BI-MAR
Intermediate sustainability	HI-RUR	HI-RUR
Lowest sustainability	BI-MAR	MI-VUL

OPERATIONALLY

The "I-Sustain" method could be used as:

✓ productive process sustainability assessment tool
(to measure sustainability)

✓ farm development tool
(to increase sustainability)

✓ policy makers tool
(to reach the general objectives of the CAP)

✓ communication tool
(as commercial label)

CONCLUSIONS

Sustainability is changing the production methods and the rules of competition

To be sustainable is not a fad or a marketing trend; it is the answer to a precise request that comes from the planet, from the rules and from consumers

To prepare technicians with adequate tools for a business advice it is essential to identify the points on which to advise the farm to improve the environmental, social, and economic performances and communicate this results to the stakeholders of the supply chain and to the consumers