



European Commission Programme Life + Environment

LIFE+09 ENV/ES/000441

AgriClimateChange
Combating climate change through farming
Sept. 2010 – Dec. 2013

<http://www.agriclimatchange.eu> - <http://ec.europa.eu/environment/life>

Workshop

ADAPTATION TO CLIMATE CHANGE IN AGRICULTURE
Experience exchange between Republic of Macedonia and Italy
Rome, 16th July 2013
INEA, Via Nomentana 41 - Sala Serpieri

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Comunità Montana Associazione dei Comuni “Trasimeno Medio Tevere”

<http://www.montitrasimeno.umbria.it/>

<http://www.lagotrasimeno.net/>

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Summary:

- Who is who ?
- Short description of the carbon cycle
- Why the project ?
- Short description of the project
- Current results at the Trasimeno Lake region

Who is who ?

The Comunità Montana – Associazione dei Comuni “Trasimeno Medio Tevere”

www.montitrasimeno.umbria.it www.lagotrasimeno.net

is a Public Authority representing an area of 13 Municipalities :

**Castiglione del Lago - Città della Pieve - Collazzone - Corciano - Deruta
Magione - Marsciano - Paciano - Panicale - Passignano sul Trasimeno
Piegaro - Torgiano – Tuoro sul Trasimeno**

located circa 180 km far from Rome at the centre of Italy ▽

Some information

Surface : 1,150 Square Km ca.109.000 inhabitants at 2011

Natural assets : Trasimeno Lake and natural park of Trasimeno

Cultural assets : Perugino

Economy : Tourism and agriculture

Year 2006

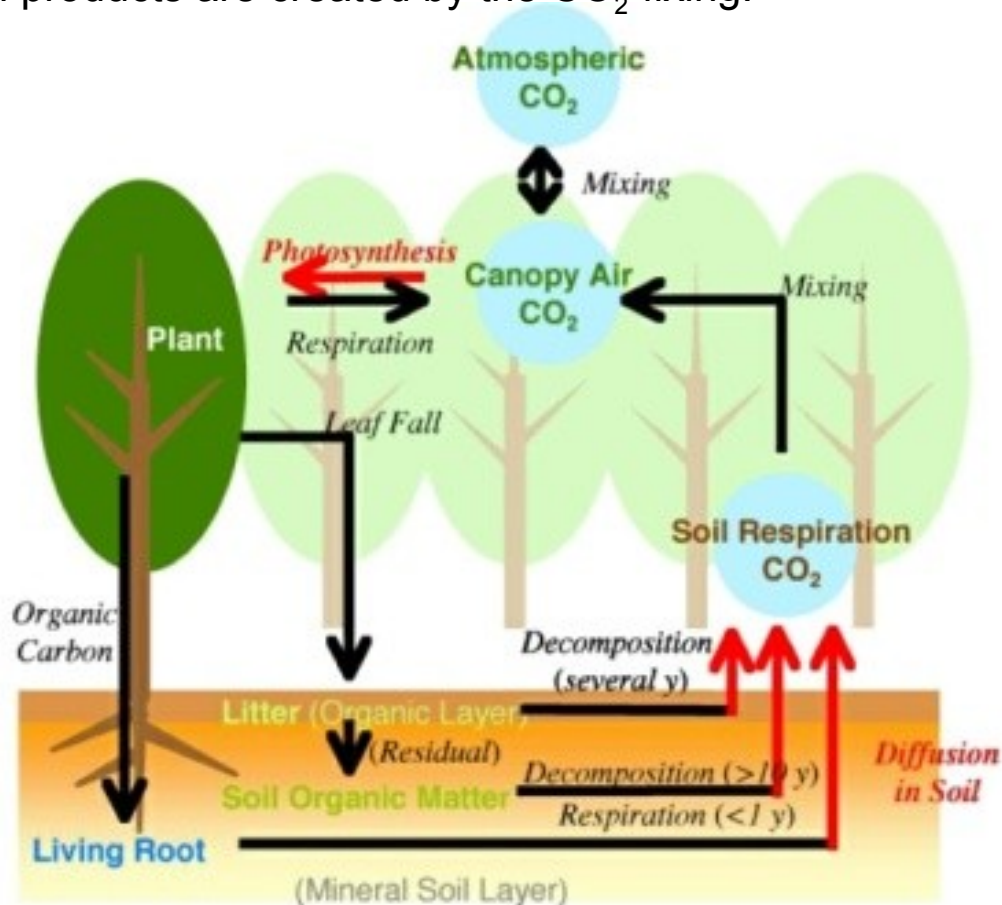
Energy consumption : 1.731.668 MWh/year

CO₂/t. equiv. emissions : ca. 485.761 that means : 4,43 t/CO₂ per inhabitant

Source : IEE Sustainable Now - LEAP / SEAP www.sustainable-now.eu

Short description of the carbon cycle

The trees, the cultivations and the vegetation generally speaking absorb and fix the CO₂ from the atmosphere through photosynthesis, becoming CO₂ storages. The food and the agriculture residual products are created by the CO₂-fixing.

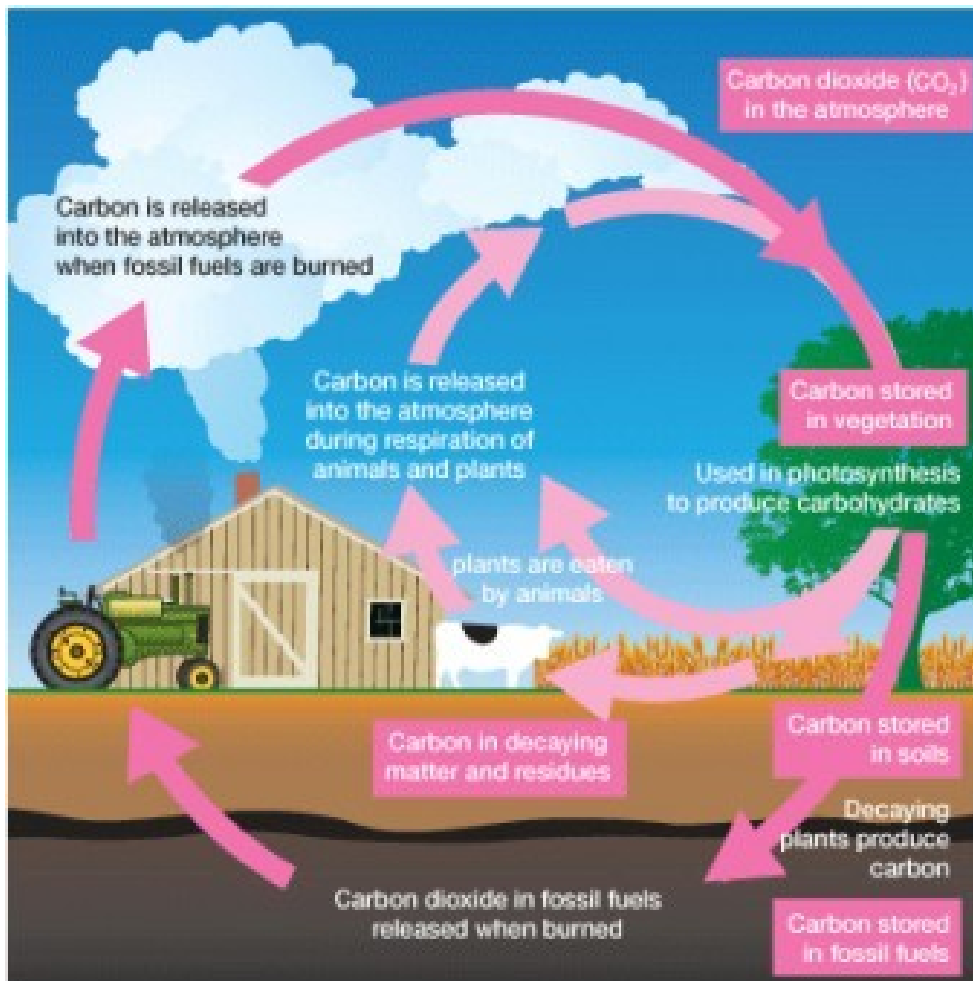


Short description of the carbon cycle – CO₂ in the atmosphere

CO₂ is released in the atmosphere burning fossil fuels

CO₂ is released when animals and vegetals breath

Carbon is available on the residuals and on decomposing materials



The CO₂ in the fossil fuels is released during the burning

The carbon is stocked in the fossil fuels

*Workshop Adaptation to climate change in agriculture
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CM Trasimeno*

The CO₂ absorbed by the vegetables is used by the photosynthesis to produce carbohydrates

The Carbon is stocked in the soil

The plants are eaten by animals

The plants decomposition releases carbon

Why the project ?

- **Competitiveness, sustainability and resilience are and will be even more in the future the mandatory quality requirements ensuring the development for each farm.**
- **In fact during the next years the agricultural companies and the whole european agriculture economy will have to face big challenges: ensuring the food security being sustainable, reducing the GHG emission produced and being able to adapt itself to economic, environmental and social impacts produced by the globalisation and by the climate change.** Surely it is possible to increase the firm's yield and the global value of the agricultural SMEs, only if they apply suitable and sustainable agricultural practices, based on the resources efficient management, helpful also to reduce their own CO₂-footprint, consequently improving their own capability to sequestrate the CO₂.

Why the project ?

- **Guarantee a greater and lasting food security in agreement with the environment / eco-system services preservation using the innovation is a valid choice and a useful best practice to become more resilient facing the climate change impacts. The sustainable best practices on agriculture, especially for the breeding, are the most useful tools improving the farming productiveness, the climate resilience as well as the natural assets and eco-systems services.**
- **Supporting and facilitating the implementation of C.A.P., the Climate Action_Adaptation and the following** :
 - COM(2012) 79 final concerning the european partnership 'Agricultural Productivity and Sustainability'" 29.2.2012**
 - COM(2011) 21 final "A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy" 26.1.2011**
 - COM(2011) 885 final "Energy Roadmap 2050" 15.12.2011**
 - COM(2012) 673 final "A blueprint to safeguard Europe's water resources" 14.11.2012**
 - COM(2012) 46 final "Implementation of Soil Thematic Strategy.." 13.02.2012****and consequently the national strategies and plans**

Short description of the project - objectives

- The principal objective for the LIFE + AgriClimateChange project is strengthening the agriculture capability to contribute to the mitigation / to improve the resilience facing the climate change impacts, supporting and facilitating the implementation of energy-efficient best practices by the agricultural SMEs, in order to improve their own environmental, economic and social sustainability.
- → **The specific objectives are:**
- a) motivate the farmers to improve the enterprise competitiveness, identifying, promoting and implementing sustainable agricultural best practices, thus more efficient / resilient to face to the climate change impacts ;
 - b) improve and to tune a methodology and consequently a software (ACCT-AgriClimateChange Tool), tested on a sample of european farm SMEs (Spanish, France, German and Italian), thus each SME will be able:
 - to execute its energy audit, acquiring the useful technical and methodological knowledge, consequently the capability to assess its own energy practices and the related costs;
 - to define its own energy management plan, optimising the energy practices and consequently reducing the GHG (es CO₂, CH₄, NO₂,...) emissions production, been able to identify the most suitable operations, making their own energy cycle management more efficient, environmental friendly and profitable.

Short description of the project - Activities

1. Tuning a methodology and testing a software tool (ACCT-AgriClimateChange Tool) to assess the global energy and GHG emissions balance for the farms;
2. Planning and implementation of individual energy actions plan for the **120 sample farms**, located in the 4 project partner member States, able to reduce the SME energy consumption and the GHG emissions, advising also specific agricultural best practices, facilitating the fulfilment of the achieved results

Short description of the project - Activities

ACCT : Agri Climate Change Tool

The AgriClimateChange Tool (ACCT) was developed as part of the Life+ AgriClimateChange programme. The programme's aim is to fight against climate change in farms.

The method used by the ACCT was **collectively** decided by all the partners of the AgriClimateChange Programme .

The sources of the ACCT are: the GIEC (Intergovernmental Panel on Climate Change, IPCC), the LCA (life cycle analysis), ISO norm 14064, the Bilan Carbone®, the national and international GGE inventories, Dia'terre®, PLANETE GES, the CORPEN (nitrogen balance).

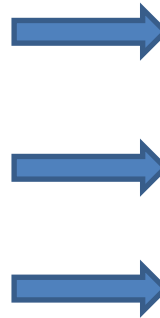
It also draws on the European Commission's Decision of 10th June 2010 on the guide for the calculation of carbon stocks in soils, as required in Annex V of the Directive 2009/28/EC.

Short description of the project - Activities

ACCT : Agri Climate Change Tool general scheme ■

INPUT INFORMATION

- Animals
- Crops
- Carbon Storage
- Direct Energy
- Chemical Inputs
- Material
- Building
- Cold



OUTPUT RESULTS

- Energy
- Nitrogen Balance
- GHG Balance
- Scopes: indication on the best sectors to be treated

Short description of the project - Activities

1. Definition of global suggestions for the C.A.P., as reference to work out new agro-environmental actions and of new european/national programmes, useful to improve the farms sustainability and theirs own capability to become more resilient regarding the climate change impacts. Because up to now the previous environmental measures of the CAP were mainly oriented to the “water and biodiversity topics”, it is very important to develop new proposals facing the climate change impacts on agriculture.
2. Dissemination and communication activities: (1) an energy management manual for farmers, (2) a DVD about the project results, (3) an itinerant exhibition "Agriculture and Climate Change" with posters, (4) an information brochure for consumers, (5) and the participation to seminars, workshops, etc.

Short description of the project - **main results**

- Energy efficiency management implementation and sustainable consumption life style promotion;
- An european free software tool for the energy assessment of the agricultural SMEs. The software will make available also standard and innovative information regarding the practices facing the climate change impacts in agriculture.
- Consulting service supporting the agricultural SMEs using the tool.
- The identification of the suitable crops more resilient and more sustainable for the farm economy;
- Information about the food products ecological footprint in terms of GHG emissions and/or energy consumption, supporting a sustainable life style for consumption, based on reliable information;
- Suggestions to the EC for the C.A.P.;
- Exchange of information and of knowledge on energy efficiency and on climate change impacts in agriculture between the project partners
-

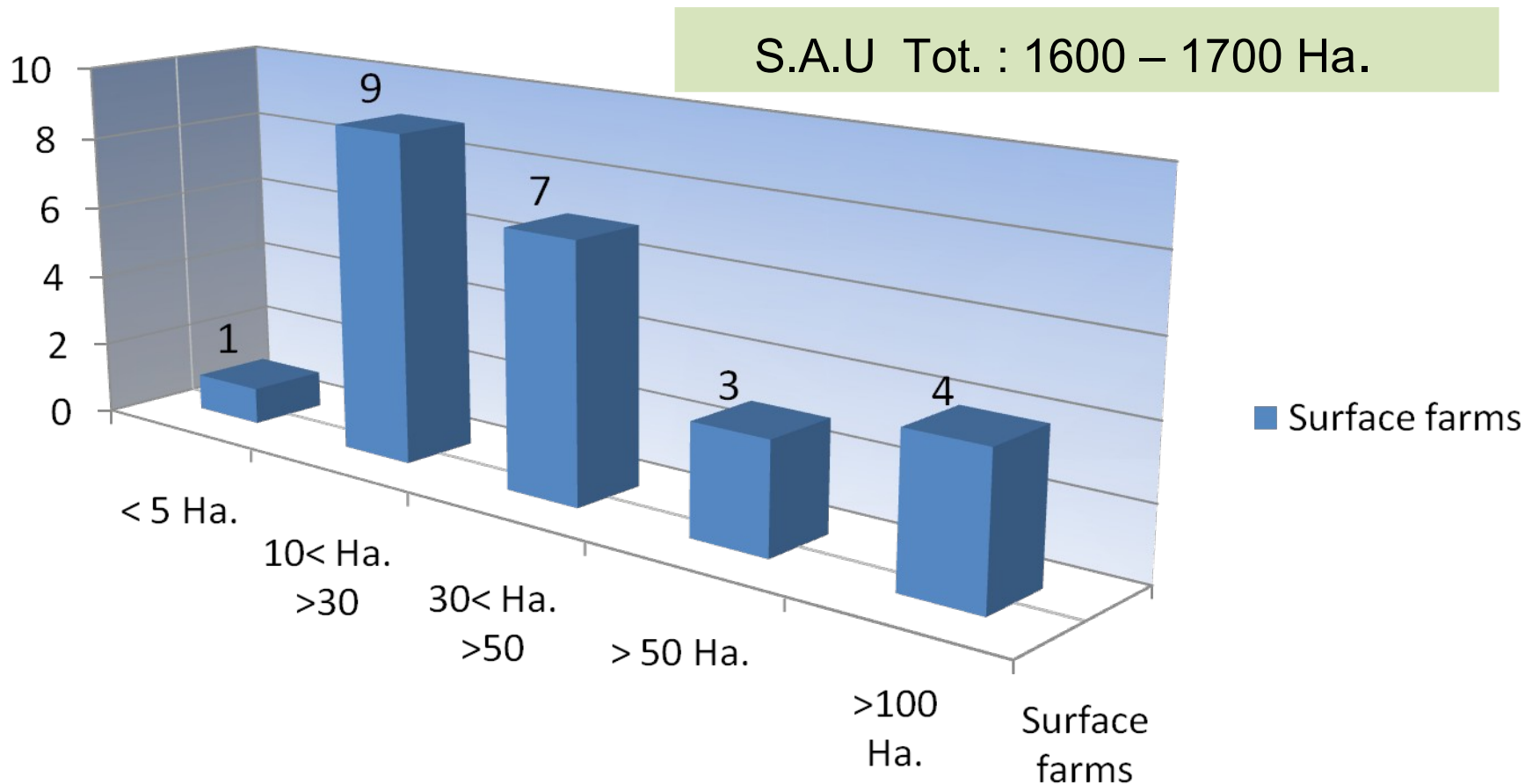
Short description of the project - The partnership

- **Spain** - project leader is **GNF (NGO)** in in cooperation with the Regions of **Murcia, Canary Isles and Valencia**
- **Germany: Bodensee Stiftung (NGO - Baden Württemberg);**
- **France: Solagro** technical partner for the software tool
- **Italy: Comunità Montana- Ass.ne Comuni Trasimeno – Medio Tevere**
- **A sample of 120 rural SMEs** belonging to the most significant agricultural systems of EU: **France, Germany, Italy and Spain**

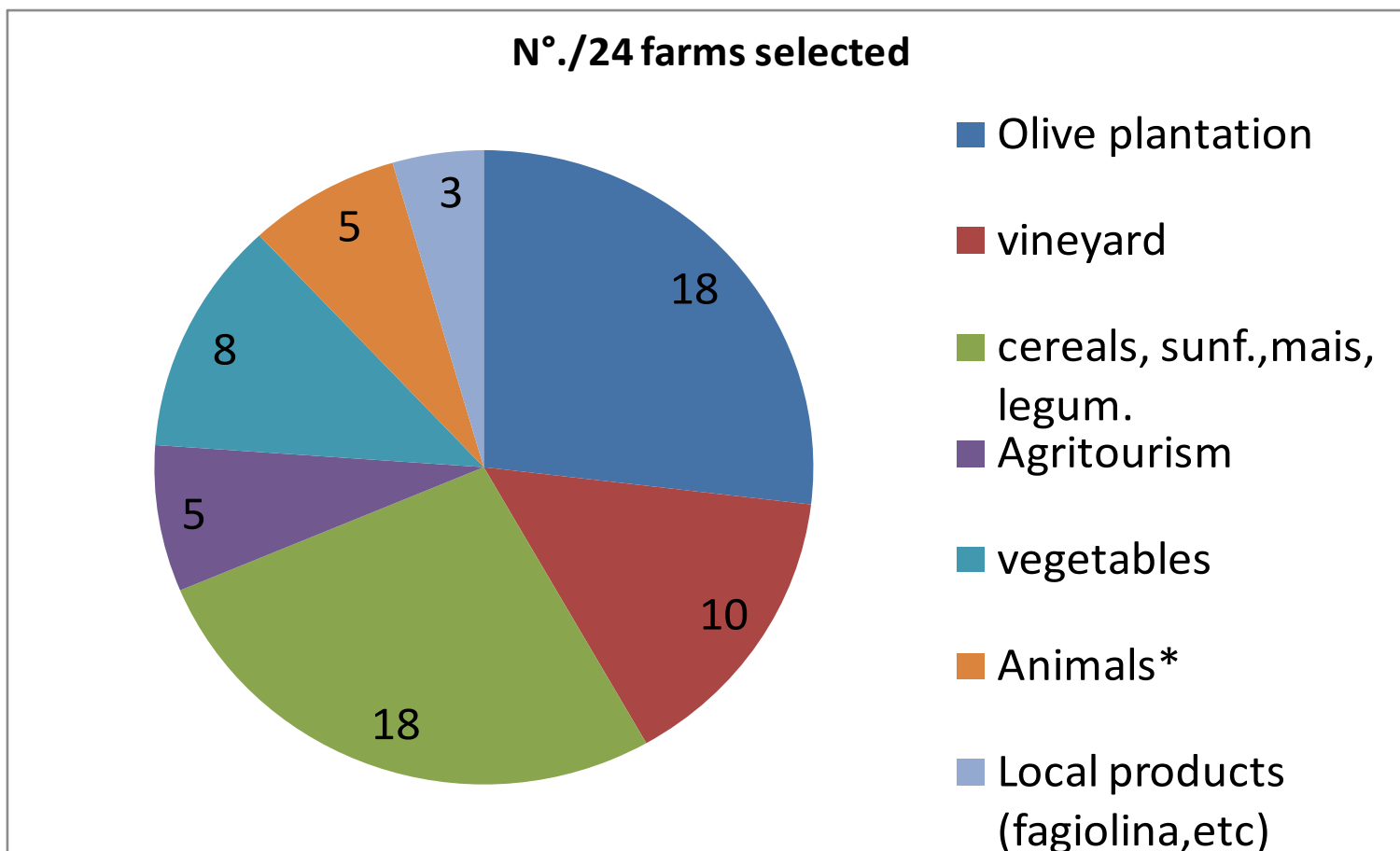
SMEs sample at Trasimeno Lake region

Surface distribution of the 24 SMEs sample

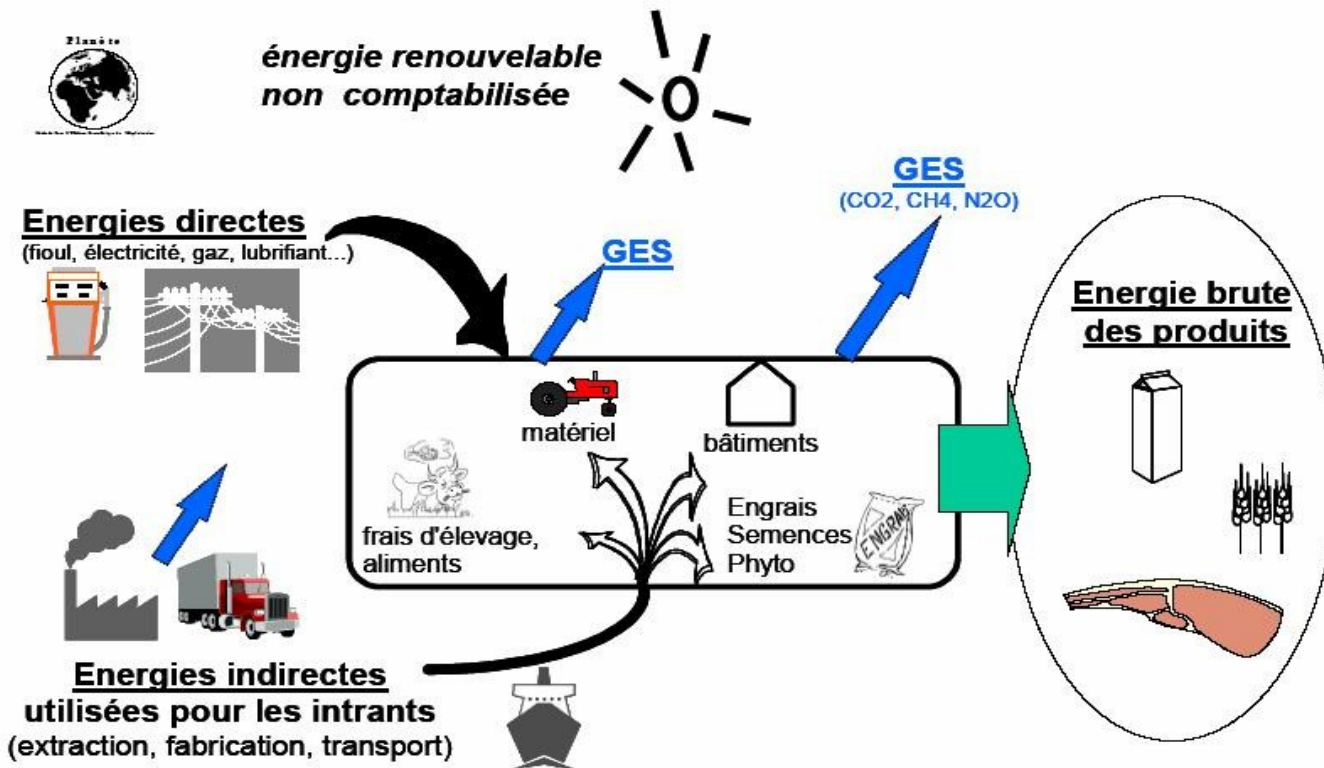
Surface farms



24 SMEs sample at Trasimeno Lake region Economic activities



Software tool flow for the energy audit and the GHG emissions calculation for each rural farm



Current results on the Trasimeno Lake region Sample of 24 SMEs March 2013

Comparison between the 2010 and 2012

Year 2010

Average energy consumption
of the **24 SMEs**

is

25,4 gJ/ha

equivalent to

GHG 3,13 t/ha
emissions

Year 2012

Average energy consumption
of the **24 SMEs**

is

20,7 gJ/ha

equivalent to

GHG 2,51 t/ha
emissions

Comparison between 2010 and 2012 years

Energy : - 19%!!

GHG : -20%!!

Key point to take into account : economic crisis – climate change

Current results on the Trasimeno Lake region

Suitable actions suggested to the 24 SMEs

facing energy consumption and GHG emissions

Capacity for the reduction / stock
Emissions depending on the used fossil energy sources and from the halocarbons
CH4 and N2O emitted from animals and from the manure
N2O Emissions from the fields and the CH4 emission from rice-growing
Additional yearly carbon stockage
Renewable energy sources
Total CO₂/ year

Current results on the Trasimeno Lake region March 2013

Some actions for the energy action plans

The most important actions suggested are:

- Substitution of the synthetic fertilizers by the Leguminosae introduction or increase
- **Low tillage, soil seeding and cover crops**
- **Implementation of the new technologies** (precision farming, GPS, sensors thermalhigrometric): reducing the gasoil consumption, fertilizers, pesticides, seeds, water, etc.
- **Self-production and self-use of RES-energy:** energy from photovoltaic, from biogas
- Drop irrigation and fertilizer-irrigation

Trasimeno Lake region “key words” for the future

We can participate and we want support to the transition process to the sustainable economy :

- **Green economy** : environmental friendly - resource efficient – quality innovative – national and international partnerships
- **Climate resilience** : knowledge – local cooperation – international partnership
- **Social innovation** : active citizenship – innovation – solidarity - partnerships
- **Governance** : transparency – bottom/up process – partnerships



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Project

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Short DVD

Many thanks for your attention

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