

# Biogasdoneright: a cold planet with full plates, a sustainable, low cost, reliable and win win BECCS solution

Lodi, IFIB 2015

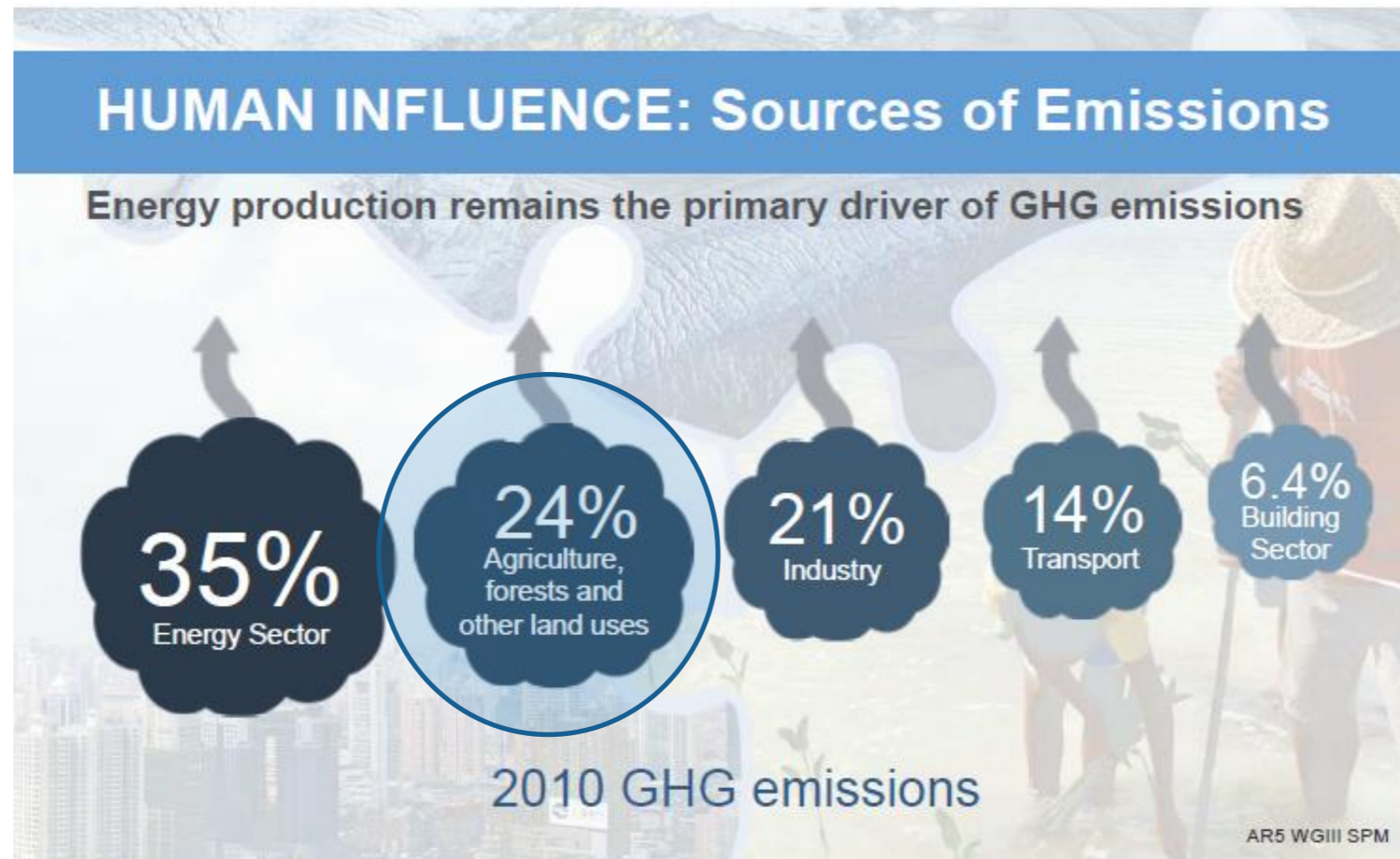
Dr. Fabrizio Sibilla, CIB

# BIOGASDONERIGHT®

ANAEROBIC DIGESTION AND SOIL CARBON SEQUESTRATION  
A SUSTAINABLE, LOW COST, RELIABLE AND WIN WIN BECCS SOLUTION

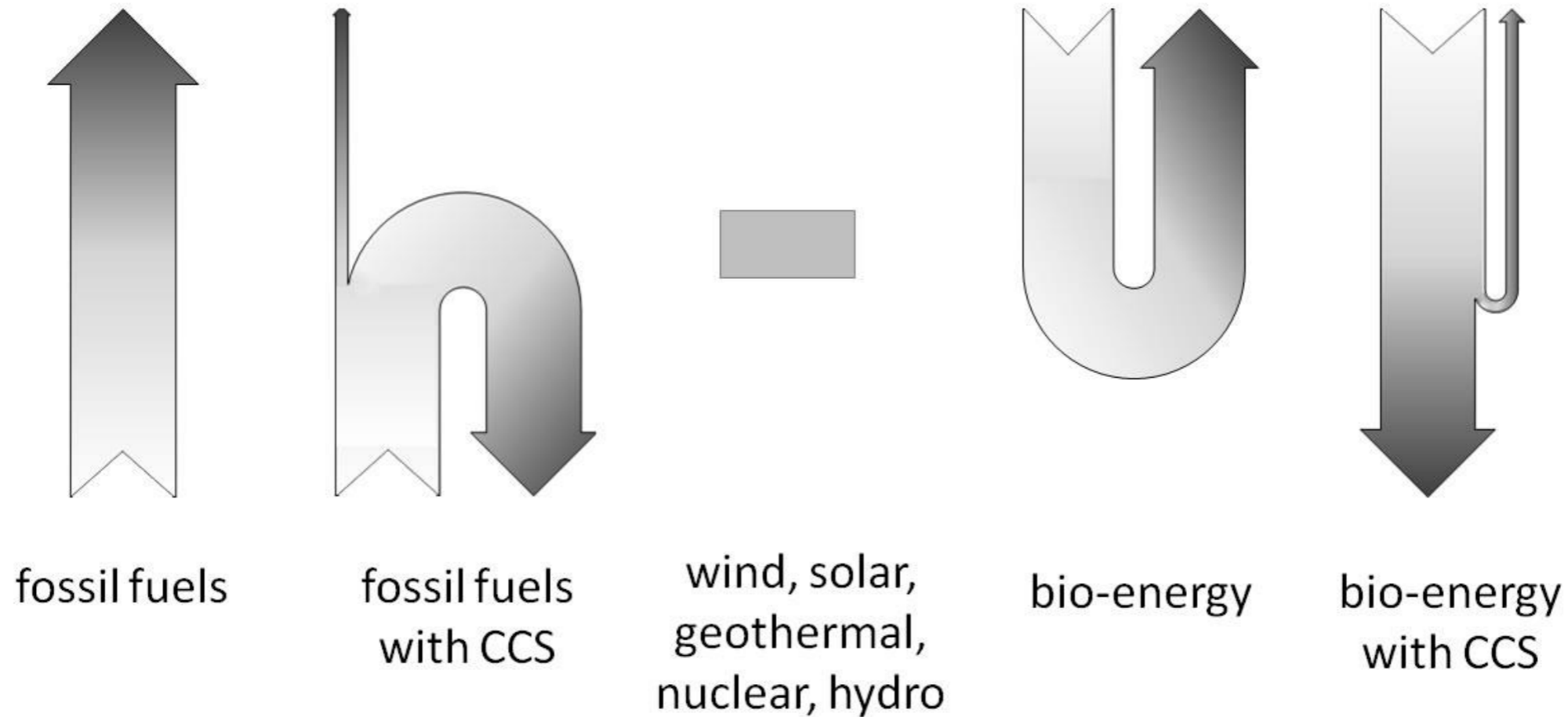


# IPCC Mitigation Report 2014



Agriculture alone is responsible for 12% of the GHGs emission globally

# What is it a BECCS?



# BECCS with geological sequestration

## Bio-Energy with CCS (BECCS) carbon flow

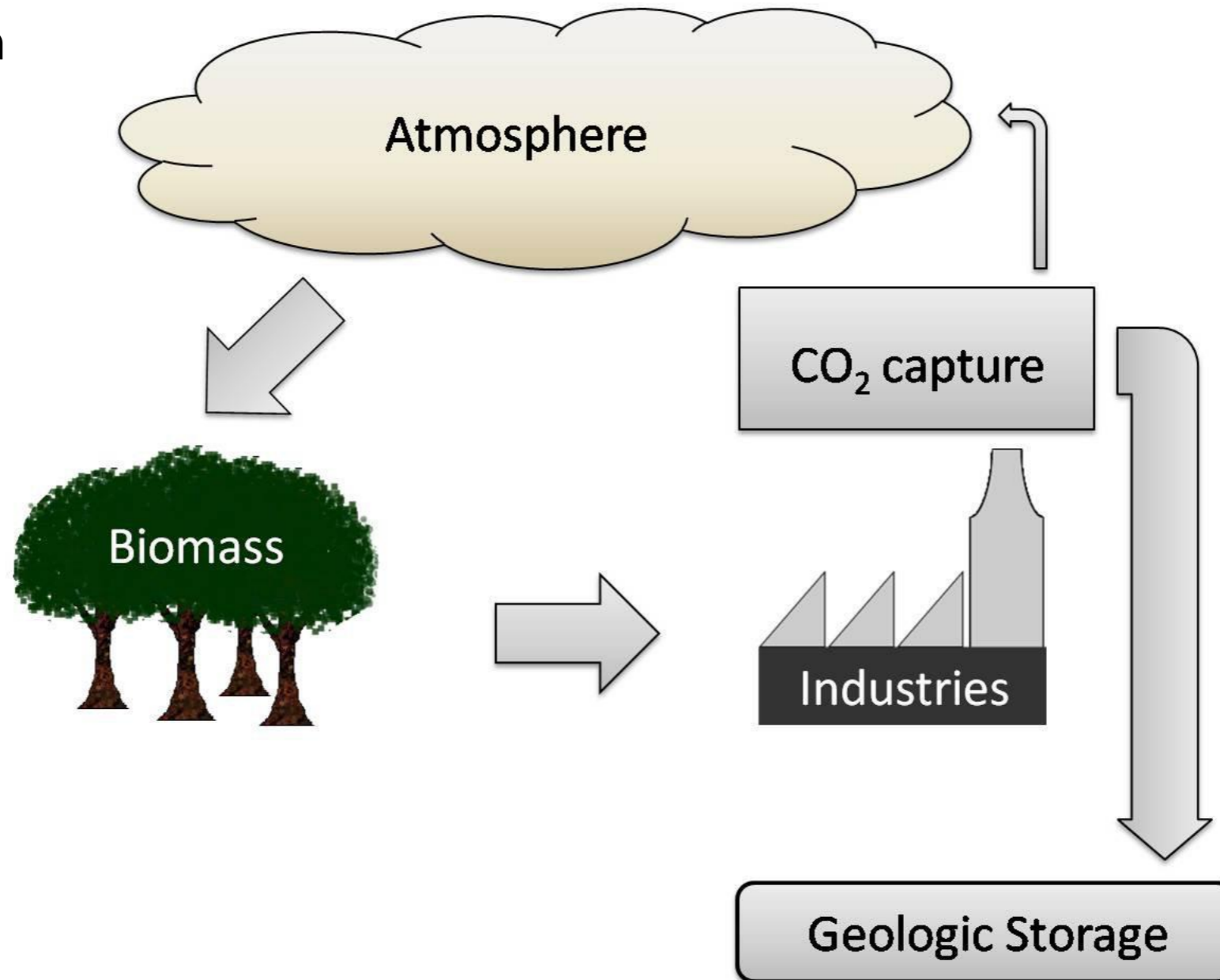
NIMBY Opposition

Expensive

Logistic problems

No other positive externalities than “only” CO<sub>2</sub> sequestration

Soil erosion



# Agriculture can become part of the solution rather than being part of the problem

IPCC “Mitigation report”

April 2014 The BECCS

in order to prevent abrupt climate change scenarios the mere production of carbon neutral electrons will not be sufficient, and that technologies able to sequester CO<sub>2</sub> directly from the atmosphere as will be needed as afforestation and **Bioenergy and carbon capture and sequestration (BECCS)**

## BECCS hurdles

In relation to BECCS, IPCC underlines that

- *“There is uncertainty about the potential for large-scale deployment of BECCS”*
- *“These challenges and risks include those associated with the upstream large-scale provision of the biomass that is used in the CCS facility as well as those associated with the CCS technology itself.”*



# Why agricultural soil is the best carbon sink?

Adding CO<sub>2</sub> to soils has many more positive externalities than most of other CO<sub>2</sub> capture & usage (CCU) techniques.

When the soil is properly farmed, CO<sub>2</sub> is stored via digestate in the fields for long time

The NPP of the soil is enhanced, second or maybe even triple harvest are possible at many latitudes

The digestate in the soil can be used to fight back desertification in many areas

The digestate brought back in the soil avoid fossil fertilizers and also Phosphate fertilization. Phosphate is becoming increasingly under pressure since its reserves are declining



# Biogasdoneright ® is more than just CO2 removal from the atmosphere

- Biogasdoneright is a tool against food speculations: it decouples the price of food, feed & energy from the fossil markets (food price is linked to fossil prices due to the high fossil input in modern agriculture)
- Biogasdoneright acts globally & locally: globally decouples price of food from fossils and enhance world food security, locally increases the income of farmers and can fight desertification, soil erosion and lower fertility through conventional, modern agriculture, prevent massive migrations due to reduced soil fertility or not competitive agriculture
- Biogasdoneright is a system that not only stores CO2 in the soil, but has positive externalities that go ways beyond CO2 storage





# The biogasdoneright® agricultural emissions mitigation

Mitigation of livestock effluents and by products GHG emissions

Soil coverage the whole year

Increased crop rotation

Double croppings with minimum tillage with techniques mutuanted from conservative and precision farming

**Greater increase of Organic Matter to the soils**

# The digestate and soil carbon sequestration

Soil is the 2<sup>nd</sup> ecosystem for its carbon content after oceans

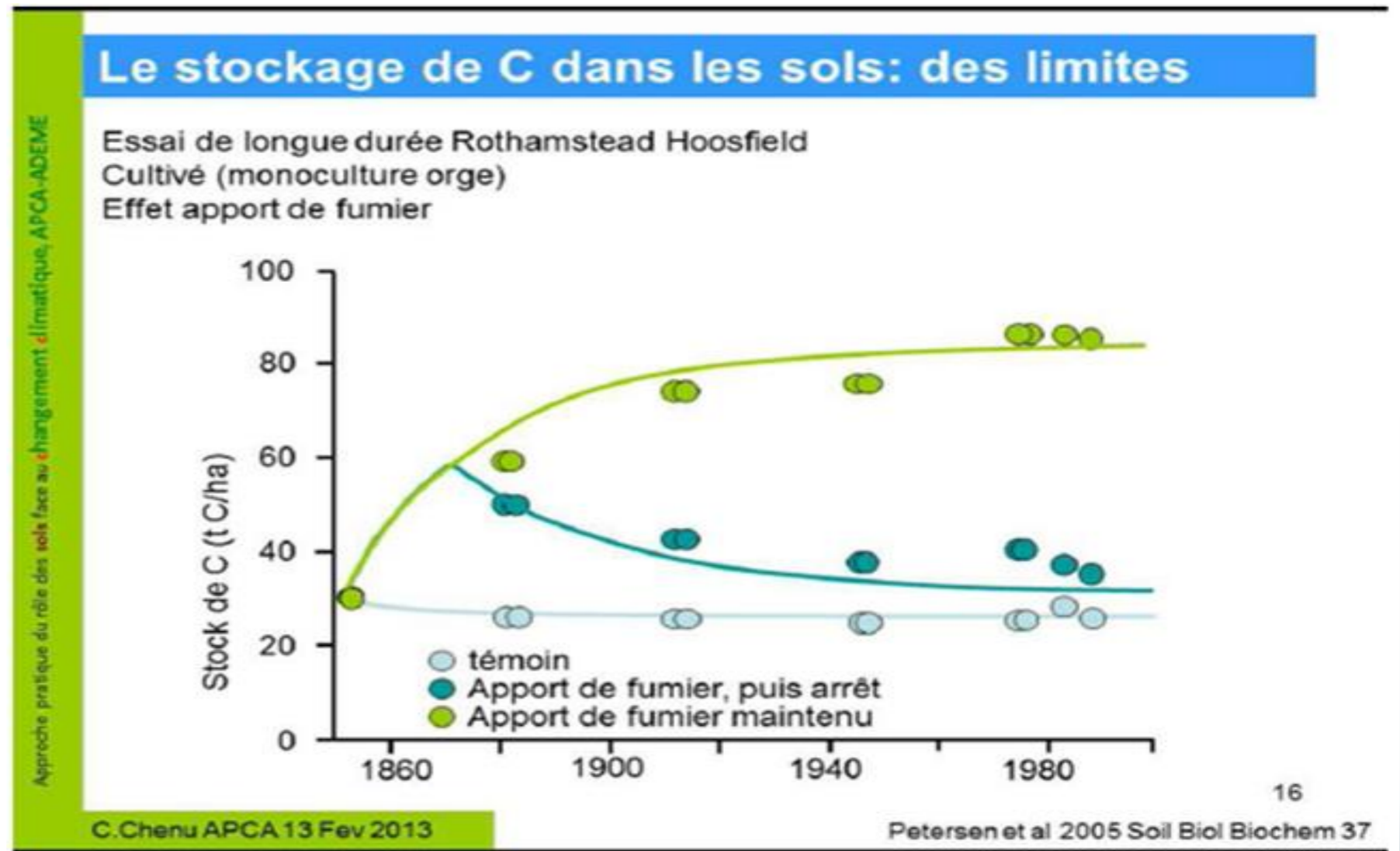
Conversely to the oceans (acidification)

Carbon in soil is useful and not harmful

If we reduce losses and increase inputs

The Carbon content increases until a plateau

Considering the losses of Carbon from farmed lands in the last decades



***There is room to store 50-100 Gton carbon, thus 25-50 ppm CO<sub>2</sub>***



# Biogasdoneright® : agricultural ecological intensification and soil carbon sequestration

Why we believe biogasdoneright ® is best BECCS system?

Combination of already existing techniques

Production of **ADDITIONAL CARBON**

Costs for CCS payd by increased harvest, diversified markets

Improve resilience of agriculture to climate change

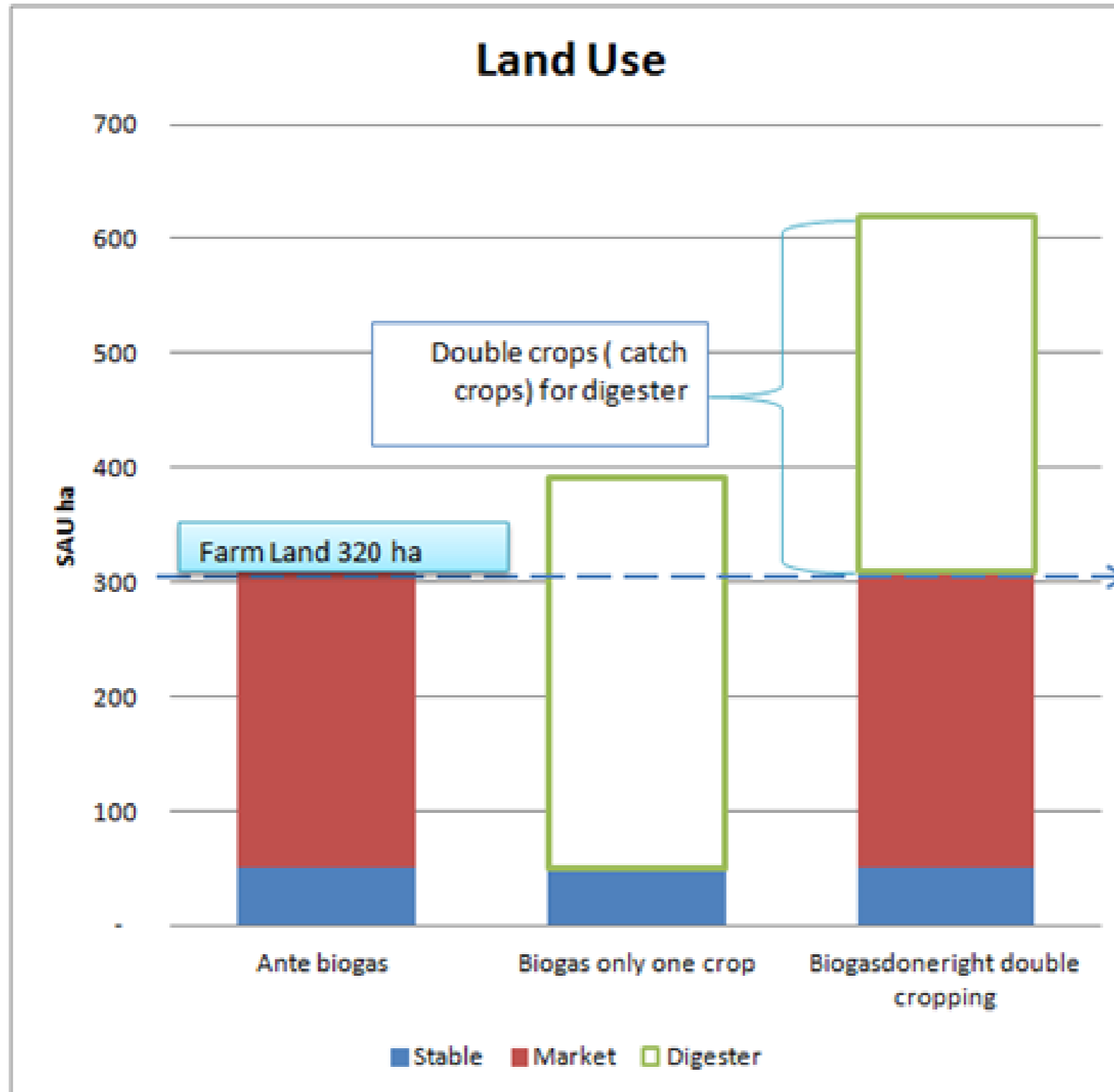
Create self-sustained green jobs

# Biogasdoneright®

Biogasdoneright® is the only solution that at the same time:

- Can be deployed in poor & rich countries
- Create jobs especially where are needed (developing countries facing the challenges of Climate Change) and reduce migrations
- Enhances soil fertility, prevent soil erosion
- Increases the NPP at every farm where is deployed
- It is easy compared to other CO<sub>2</sub> atmosphere removal technologies
- It produces food, feed & clean energy while it removes CO<sub>2</sub> from the atmosphere

# Effects on land use



# Drip irrigated Corn after Triticale

## Cazzola farm- Verona

Fertilized with Renewable Ammonium Sulphate made via digestate evaporation

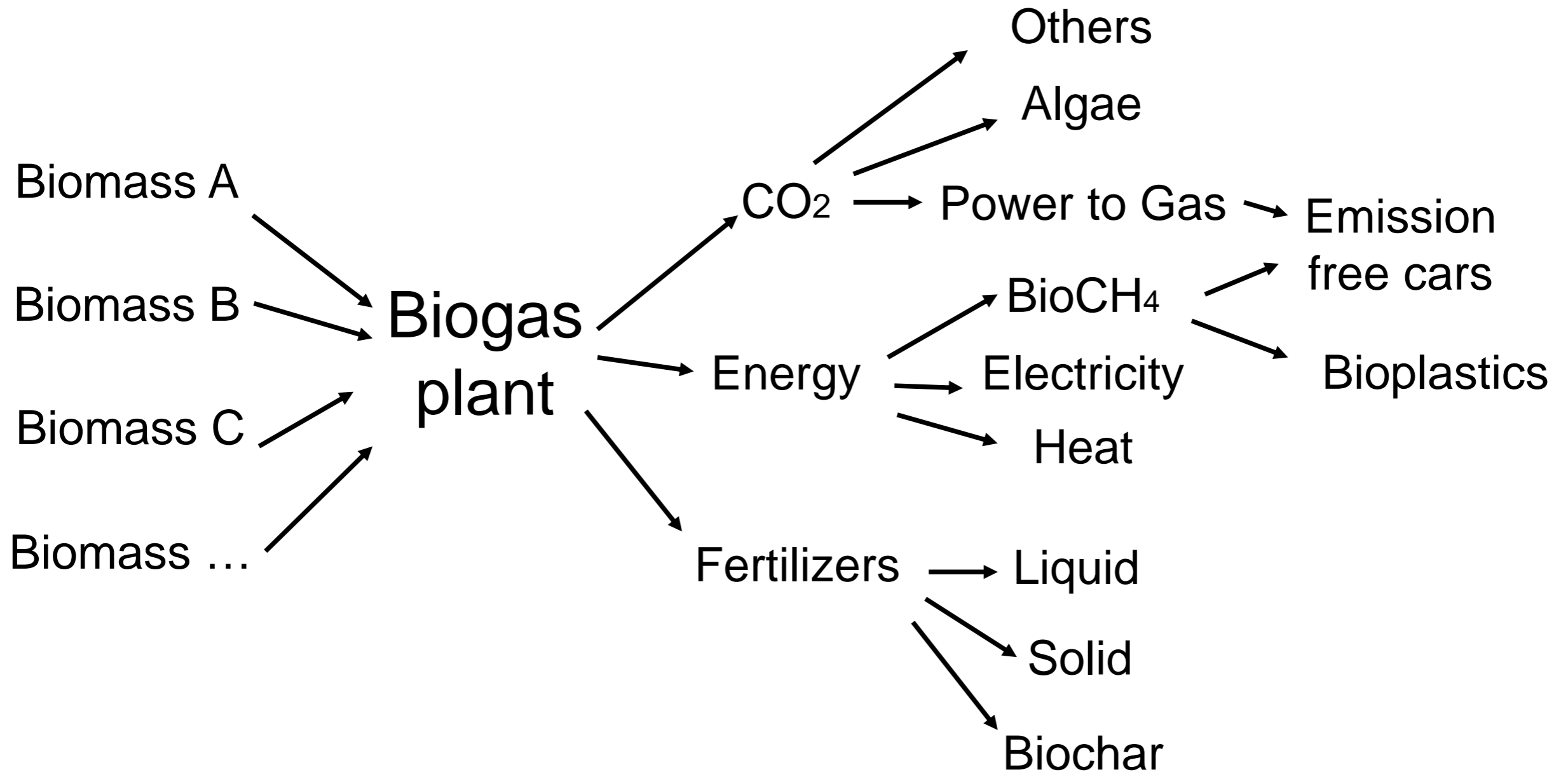


- ✓ Less watering
- ✓ Less Nutrients
- ✓ More nutrients for plant uptake
- ✓ 50% more yields
- ✓ More predictable yields

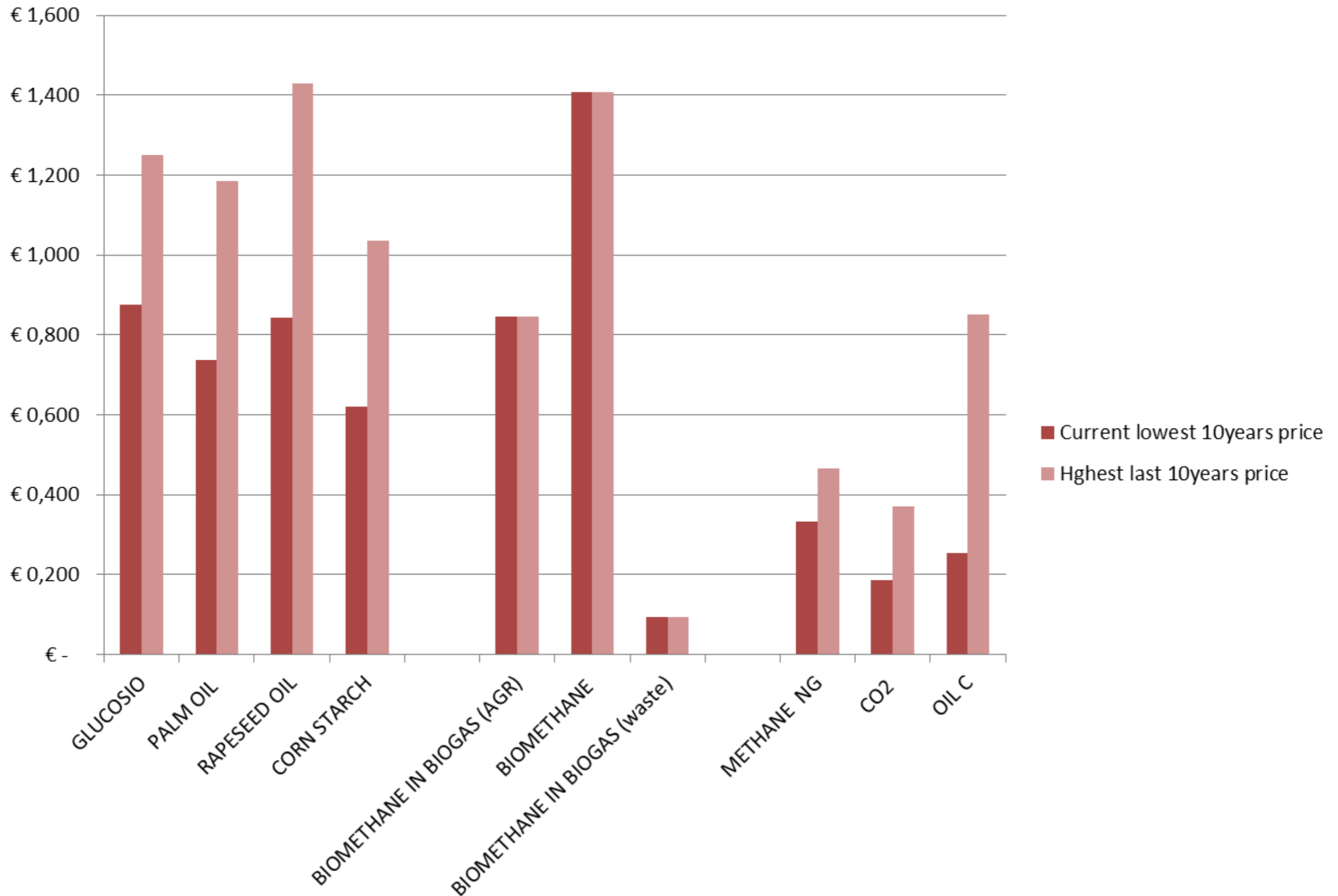
**Simply less risky&costly  
more sustainable corn farming!!**



# Biogas refinery



# Prices of Carbon feedstocks for Industrial Biotech







Next event:  
**9° October 2015**  
**Sicily (Carrubba di Giarre)**  
Radicepura Congress Center

**Biogasdoneright and Soil Carbon  
Sequestration**

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**Thank you for your attention!!**

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