Regions at work for the Bio-Economy:
How to help entrepreneurs convert bio-wastes into efficient fertilisers in a fair regulatory framework and a financially de-risked environment?
7- 9 July 2014, Rennes (France)

Conversion of biochar science into industrial replication model and commercial practice
Edward Someus

The REFERTIL project is co-funded by the European Union, Seventh Framework Programme under Grant Agreement number 289785. 2011-2015.
3R Pyrolysis & Biochar Technology Readiness Level

1990 – 2001  Early preparative research, experimental proof of concept  **TRL2 – TRL4**

2002 – 2005  Successful carbonisation field tests, 200 kg/h wide range of materials, FP5, **TRL6**.

2005-2008  Animal by-product valorisation, solid state fermentation/formulation, FP6, **TRL6**.

2010  ABC GVT Authority permit 02.5/67/7/2009

2009 - 2012  First industrial application of the solid state fermentation biotech process. (CIP-Ecoinnovation, PROTECTOR) **TRL7**

2009 – 2014  System industrial engineering design for preparation of **TRL8** first industrial & commercial replication model, 20,000 t/y throughput for implementation in 2015.

**IMPORTANT:** SME farmers require “SHOW ME” demonstration in full scale technical and commercial practice. The industrial & commercial replication model demonstration is the ONLY convincing way for SME farmers.
FIRST INDUSTRIAL REPLICAION MODEL

"3R" ZERO EMISSION CARBONIZATION PROCESS

FOOD GRADE BONE CHIPS

Process gas CATALYTIC CONVERSION

REFINED BIO-OIL
RECYCLED NITROGEN

BIOTECH Solid State Fermentation

FORMULATED NPK-C BONE CHAR

EFFECTS:
- Full value organic P fertilizer.
- Enhanced productivity.
- Nutrient & moisture retention.
- Improved soil life.
- N₂O mitigation.
- Cation Exchange Capacity ↑

DIRECT SOIL APPLICATION

COMPOST ACTIVATOR

www.agrocarbon.com
www.refertil.info

DROUGHT TOLERANT HORTICULTURE
ORGANIC/LOW INPUT FARMING

Recycling of concentrated natural phosphorus bio-fertiliser
Biochar for high efficient bio-waste resource utilization

3R pyrolysis processing
field demo plant since 2004:
proven demonstrated in 10 years

Commercial production tests

The advanced REFERTIL results
are achievements of the
integrated EU top science and
technology cooperation.

Targeted endusers: SME FARMERS, horticulture, tobacco + added value crops

Efficiency tests

ABC AGROCARBON

Drought tolerance tests

The final product
SAFE FOOD for affordable cost
REFERTIL BIOCHAR main results

1. Bridge over and interconnection of biochar applied science and economical industrial practice for the interest and benefits of the SME farmers.

2. Improvement and validation of biochar production and BAT treatment process towards high quality standardized biochar production.

3. Biochar product validation tests in different climatic, soil and dose conditions in Europe.

4. Scale up field demo into zero emission full industrial replication model with 10,000 t/y output ABC Animal Bone bioChar. Low CAPEX, low OPEX, ROI <3 years, strong output product uptake market in IT, FR, ES, DE, JP, AU and US.

5. EU FERTILIZER REGULATION revision policy support development for setting up common quality biochar standard requirements, limit values and EU/MS law harmonization.

6. Target next: be global and strategic player for ABC before 2020.

www.refertil.info
INVITATION:

REFERTIL INTERNATIONAL CONFERENCE
June 23, 2015, Brussels

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The new technologies open new technical, economical and environmental opportunities

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