

„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?

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Conversion of biochar science into industrial replication model and commercial practice

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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)

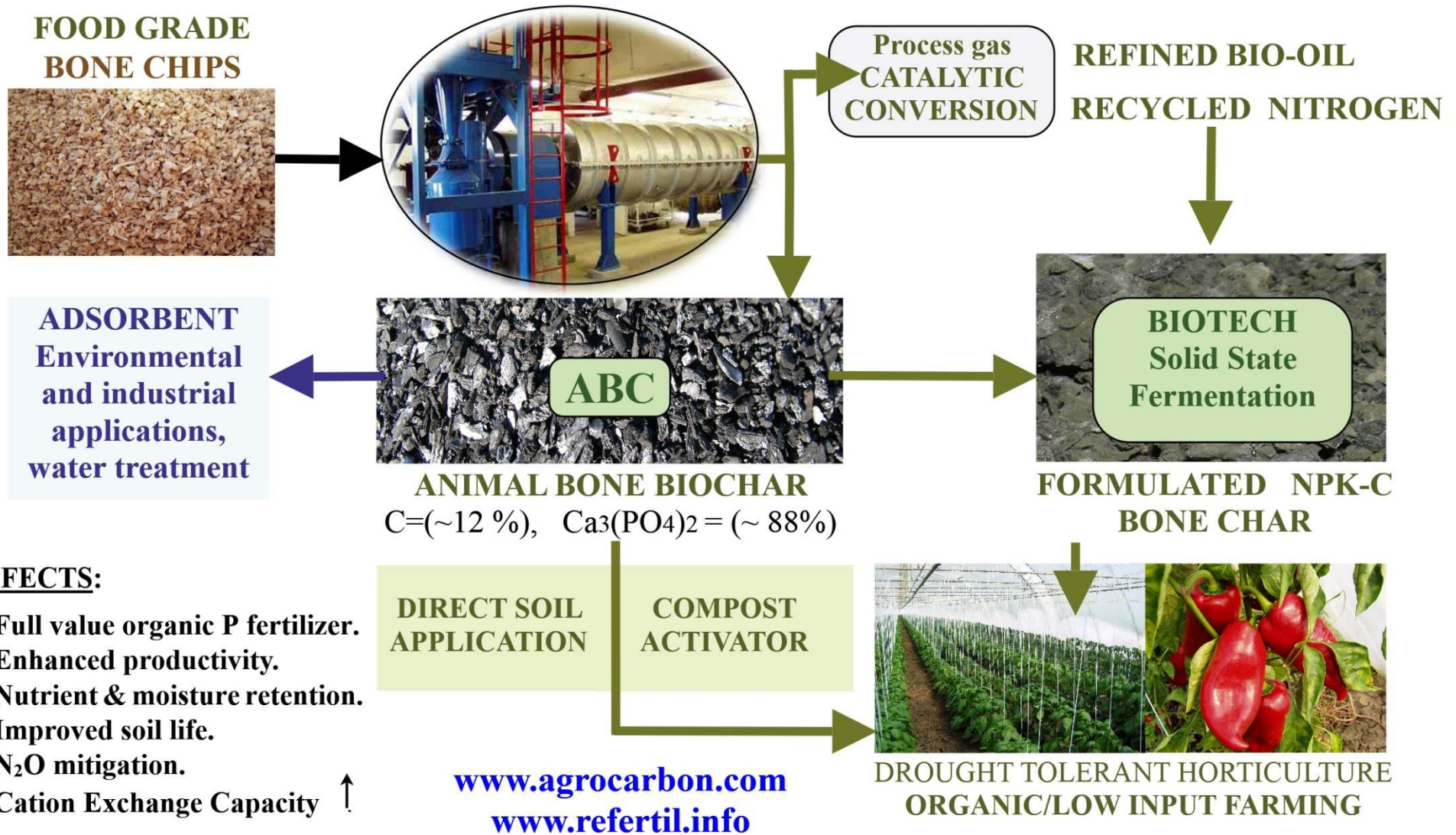
2009 - 2012 First industrial application of the solid state fermentation biotech process.(CIP-Ecoinnovation, PROTECTOR) **TRL7**

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 REPLICATION MODEL

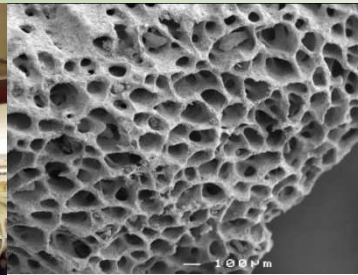
"3R" ZERO EMISSION CARBONIZATION PROCESS



Recycling of concentrated natural phosphorus bio-fertiliser



Biochar for high efficient bio-waste resource utilization



ABC
Animal Bone
bioChar



Efficiency tests

**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.**



Drought tolerance tests

**The final product
SAFE FOOD for
affordable cost**



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

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.



REFERTIL
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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