

Biochar: innovations obtained through carbonizations tested in Amiata and Maremma

Riferimenti

Tipo di progetto

Gruppo Operativo

Acronimo

BIOACTAM

Tematica

Gestione dei sottoprodotti agricoli

Information

Time frame

2020 - 2023

Durata

29 months

Partners (no.)

13

Regione

Toscana

Comparto

Multifiliera

Localizzazione

ITI19 - Siena

ITI1A - Grosseto

Costo totale

€363.206,25

Fonte di finanziamento principale

Programma di sviluppo rurale

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2014IT06RDRP010: Italy - Rural Development

Programme (Regional) - Toscana

Parole chiave

Farming/forestry competitiveness and diversification

Fertilisation and nutrients management

Waste, by-products and residues management

Sito web

<https://www.bioactam.it/>

Project status

completed



Objectives

The general objective of the project is to develop and validate a new generation of products, based on the partial pyrolysis of ligno-cellulosic biomass deriving from forestry, agri-forestry and agronomic activities.

The material coming from sustainable management will be used in the agricultural, nursery and cosmetic sectors, aiming to increase soil fertility, mitigate climate change and concretely developing green technologies. The research activities will be carried out on biochar obtained from the combination of forest, agri-forestry, olive-growing, agricultural and nursery sectors, in an innovative form for the territory.

Activities

The sharing of the experiences from all partners will be the characterizing element of the project, through specific phases summarized as follows:

- optimization and standardization of an innovative technology for discontinuous biochar production;
- use of biochar as a soil improver in the nursery and / or agricultural sector and monitoring of the fertility of the "soil system" through microbiological indicators and as a basis for cosmetics;
- dissemination of the results of the project on the territory.

Context

The agro-forestry activities of the Amiata and Maremma in general have recorded sharp drops over the years. The keys to economic revitalization are strictly linked to the management of the territory and reside in sustainable choices aimed at diversifying and qualifying production, also through the recovery of processing residues. The production of charcoal on Mount Amiata, once widespread and profitable, is being reactivated thanks

to the development of recent techniques such as the use of horizontal and vertical mobile ovens. Activities in this regard are carried out by the PIF FOGLIE (production of certified charcoal minimizing process inputs) and by CarbON (continuous carbonization). The charcoal product still has wide margins for valorisation (cosmetic, pharmacological or nursery uses). The production of biochar from ligno-cellulosic materials, even very different ones, has the advantage of being able to exploit waste and processing residues with less impact than other forms of disposal and at the same time generating energy. The need of the rural sector is that of a new furnace capable of bringing together simplicity of use, ductility and heat recovery in order to increase the sustainability of the process. The chemical-physical properties of Biochar make it a privileged soil improver with the ability to improve soil fertility by acting on nutrient retention, increasing the porosity and water retention of the soil system and stimulating the indigenous microbial community.

Partenariato

Role	Azienda	Address	Telephone	E-mail
Leader	CONSORZIO FORESTALE DELL'AMIATA	Località Colonia, 19 58031 Arcidosso GR Italy	0564 967248	consorzio.forestale@inwind.it
Partner	INSTM - Consorzio Interuniversitario nazionale per la scienza e la tecnologia dei materiali	Via Giuseppe Giusti, 9 50121 Firenze FI Italy	055 4573775	segreteria@instm.it
Partner	B&C TECHNOSYSTEMS	Strada Provinciale del Cipressino, 64 58044 Cinigiano GR Italy	0564 905601	bctechnosystems@hotmail.it
Partner	Azienda boschiva e segheria Vinciarelli	Via Saragiolo, 50 53040 Saragiolo SI Italy	0577 788538	segheriavinciarelli@gmail.com
Partner	Azienda Agricola Orti di Maremma	Strada Prov. Gavornanese - Loc. San Giuseppe 58023 Basse di Caldana GR Italy	328 8667350	federicom@hotmail.it

Role	Azienda	Address	Telephone	E-mail
Partner	Qualiterbe s.r.l.	Località La Rotta 122/A 58017 Pitigliano GR Italy	0564 619417	info@qualiterbe.it
Partner	Heimat servizi ambientali Soc. Coop. arl	Via Bagnoli, 2 58031 Arcidosso GR Italy	380 7031993	savelli@heimat.toscana.it
Partner	CRISBA - I.S.I.S. "Leopoldo II di Lorena"	Via dei Barberi, 58100 Grosseto GR Italy	0564 484821	moncini@crisba.eu
Partner	Consorzio Olio Extravergine di Oliva Seggiano DOP	Località Colonia 58031 Arcidosso GR Italy	0564 965259	info@consorziolioseggiano.it
Partner	Confederazione Italiana Agricoltori Toscana	Via Iacopo Nardi, 41 50132 Firenze FI Italy	055 2338911	ciatoscana@cia.it
Partner	Azienda Agricola La Casina di Giannetto	Loc. Rubbioli, 17 58038 Seggiano GR Italy	335 7616875	info@agricolacasinadigiannetto.it
Partner	Università degli Studi della Toscana	Via S.Maria in Gradi, 4 01100 Viterbo VT Italy	0761 3571	rettore@unitus.it
Partner	Cooperativa Agricola Frantoio del Parco	Strada dell'Enaoli 58100 Rispecchia GR Italy	342 8657132	samuele.pii@gmail.com

Pratiche abstract

Description

Prototype of a vertical mobile furnace with discontinuous operation

Description

"- Evaluation of the effect of adding 3 types of biochar on the fertility of the soil system in terms of microbiological

indicators, and field evaluation in nursery, horticultural and agronomic activities;

- Possibility of creating a new supply chain in the territories of the project with the involvement of new companies;
- Reduction of the negative externalities of carbonization, mainly through the collection of leachate and evaluation of their use in the production of chemical compounds and biobased materials;
- Economic valorisation of forest, olive, agricultural and nursery wood residues, transforming them from a critical element in management, economic and environmental terms, to a possible resource (biochar, chemical compounds and bio-based materials).

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Link utili

Titolo/Descrizione	Url	Tipologia
Sito web del progetto	https://www.bioactam.it/	Sito web
