



EIP-AGRI Workshop

'Opportunities for farm diversification in the circular bioeconomy'

DAY 1 – 6 FEBRUARY 2019

13:00 – 13:50

Welcome & introduction

- Ms. Sarah Watson, Lead facilitator. Warm up: who is in the room?
- Mr. Darius Liutikas, Vice-minister - Ministry of Agriculture of Lithuania. Welcome to Lithuania
- Mr. Alberto D'Avino, European Commission DG AGRI. Introduction to DG AGRI and EIP-AGRI activities
- Interviews with:
 - Mr. Paolo Mantovi, EIP-AGRI Operational Group representative
 - Ms. Efthymia Alexopoulou, Researcher
 - Mr. James Gaffey, BBI project representative
- Introducing the event programme and the Open Space opportunity, Ms. Sarah Watson

13:50 – 14:20

Presentations

- Mr. Liutauras Guobys, European Commission DG RTD. Introduction to the EU bio-economy strategy,
- Mr. Jose Ruiz ESPI, European Commission DG AGRI. Feedback on a workshop for policy makers on the integration of primary producers in the bio-economy,
- Ms. Laura Jalasjoki, ENRD Contact Point. State of play on the ENRD Thematic Group on the bio-economy,

14:20 – 14:40

The Bio-economy - a challenge and an opportunity for farmers

- Mr. Kevin O'Connor, Chairperson Scientific Committee BBIJU. Utilising relevant case studies to highlight practical opportunities for diversification into the bio-economy, focused on the farmer's perspective.

14:45 – 15:45

Presentations of four projects to highlight the broad variety of work being undertaken under the circular bio-economy theme

- Mr. Johan Sanders, CEO of Sannovations - Developer of small-scale bio-economy systems.
- **Ms. Lucrezia Lamastra, Researcher at Università Cattolica Del Sacro Cuore - involved in two Operational Groups.**
- Mr. Fernando Sebastián Nogués, Coordinator of AGROINLOG - H2020 project
- Ms. Tuula Raukola - Involved in various innovative projects in circular bio-economy in Finland

15:50 – 16:20

Coffee break

Lucrezia Lamastra
Università Cattolica Del Sacro
Cuore



funded by the European Commission





EIP-AGRI WORKSHOP OPPORTUNITIES FOR FARM
DIVERSIFICATION IN THE CIRCULAR BIOECONOMY
6-7 FEBRUARY 2019- VILNIUS, LITHUANIA



funded by  European
Commission



UNIVERSITÀ
CATTOLICA
del Sacro Cuore

SCOOTER: translate bioeconomy into practice

Lucrezia Lamastra,
EIP-AGRI Operational Group Coordinator
Department for Sustainable Food Production
Università Cattolica del Sacro Cuore



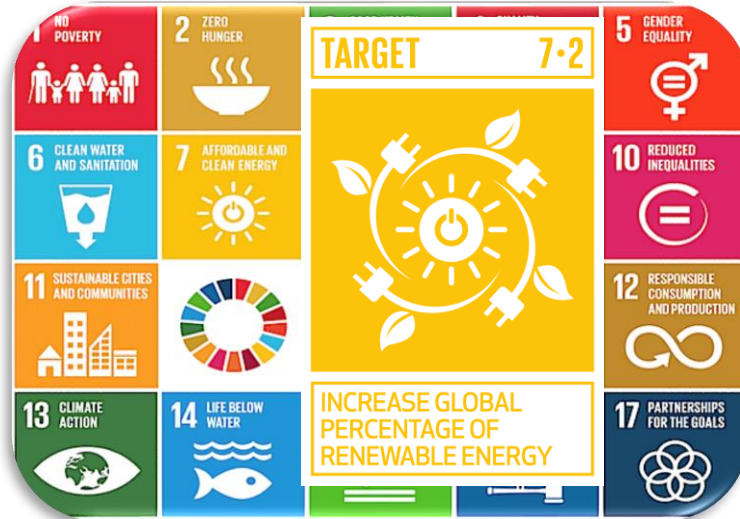
UNIVERSITÀ
CATTOLICA
del Sacro Cuore

Outline





01 The context





UNIVERSITÀ
CATTOLICA
del Sacro Cuore

02 The project's goals



Develop low-polluting
bioenergy plant



Reduce the amount of
FFVs wasted



Diversify farm activities



Give the maximum value
to the FFVs residues



UNIVERSITÀ
CATTOLICA
del Sacro Cuore

03

EIP-AGRO Operational Group



RESEARCHERS and TECHNICIANS:

2 Universities (10)
1 Experimental farm (4)



FARMERS:

Azienda Agricola Amadei Claudio
Azienda Agricola Orsi Simona
Azienda Agricola Porta Camillo



TECHNICIANS:

Regional training
institution (2)



UNIVERSITÀ
CATTOLICA
del Sacro Cuore



CENTRO DI FORMAZIONE
SPERIMENTAZIONE E INNOVAZIONE
VITTORIO TADINI S.C.a.R.L.



UNIVERSITÀ
CATTOLICA
del Sacro Cuore

03

EIP-AGRO Operational Group

Operazione 16.1.1
Gruppi operativi del
partenariato europeo per
la produttività e la
sostenibilità dell'agricoltura

Focus Area 5C
N. 5015700
From 24/08/2017
to 24/12/2019



**Programma di
Sviluppo Rurale**
dell'Emilia-Romagna
2014 - 2020



UNIONE EUROPEA
Fondo Europeo Agricolo
per lo Sviluppo Rurale

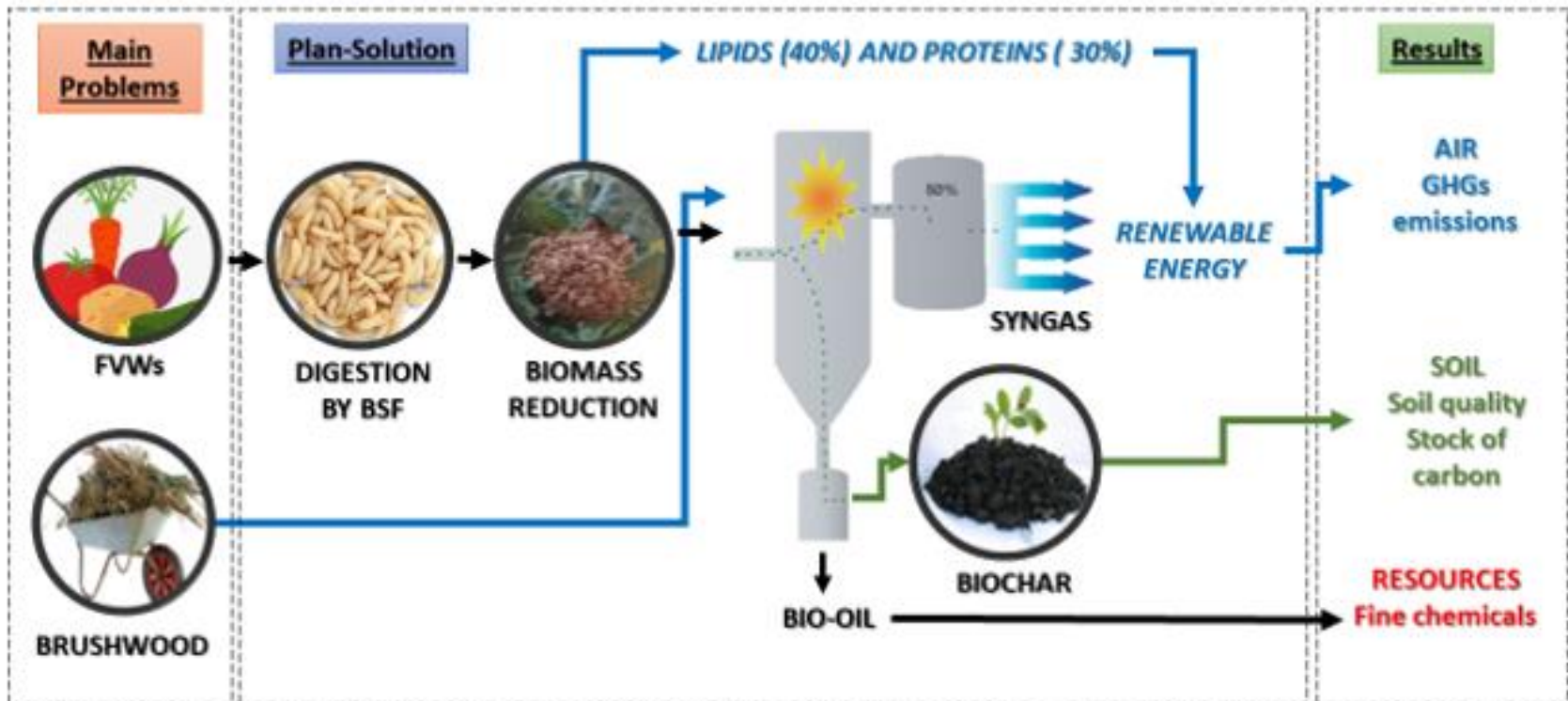


Regione Emilia-Romagna

L'Europa investe nelle zone rurali



Scarti Colture Orticole: Opportunità nella Trasformazione Energetica e nel loro Riutilizzo





UNIVERSITÀ
CATTOLICA
del Sacro Cuore

04

Project's Activities



UNIVERSITÀ
CATTOLICA
del Sacro Cuore



BSF rearing and
digestion
prototype

BSF rearing and
digestion pilot
plant





Degradation efficiency

BSF process is an efficient way to reduce the amount of residual biomasses (up to 24–90% wet weight) and to convert them into protein-rich and fat-rich biomass suitable for energy production.

Little space

BSF process requires little space compared to composting and vermicomposting

Short time

Waste processing time by BSF is very short (10-21 days) compared to composting (> 90 days), vermicomposting (>45-60 days), and anaerobic digestion (30 days).

Odour reduction

Short processing time, reduction of bacterial activity, aerating and drying of the residues by larvae.

Relatively simple and economic

BSF treatment only requires simple labour skills and is a low-cost technology (compared to anaerobic digestion)

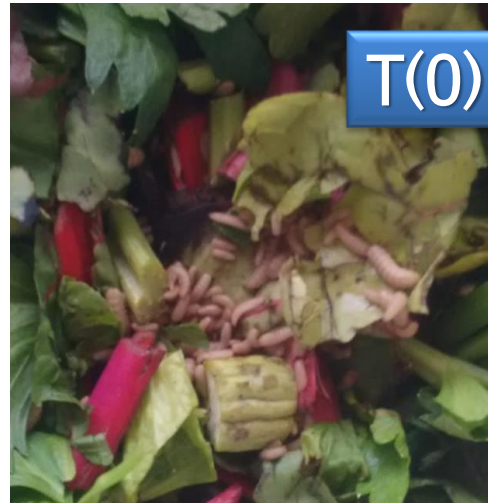




T(0): cabbage leaves + pumpkin (100 g + 100 g) + BSF larvae (6,8 g/0,5-1,2 cm)

T(+9): pumpkin fully digested

T(+18): larvae develop into pupae (biomass reduction: 90% (ww))



T(0): vegetable mix (238 g)
+ BSF larvae (6,8 g/0,5-1,2
cm)



Biomass reduction: 96% ww
Larval mass gain: 169% ww



Increase of
the larval
mass from
28 to 169 %



Reduction of
residues
mass from
87 to 97%
(ww)

30-38% of
fat
0,46 L of
biodiesel/kg
of BSF d.w.



Reduction of
water use
and land use





Renewable energy

Energy and syngas are obtained in pyrolysis prototype working at 400-600°C.

Soil amendment

Biochar is obtained as by-product of the prototype. The application of biochar to agricultural soils could provide considerable advantages, but also has a few drawbacks.

Fine chemicals

Bio-oil will be analyzed to evaluate the potential content of high-added value fine chemicals.





Larvae Characterization



Pyrolysis of the digestion residues, bio-oil characterization



Field test using biochar as soil amendment



Economic and environmental sustainability assessment



- SCOOTER proposes an innovative and efficient way to **reduce and valorize** the amount of residual biomasses in agricultural farms
- Studies are needed to evaluate the environmental and economic sustainability of the full proposed process



grazie



UNIVERSITÀ
CATTOLICA
del Sacro Cuore

Lucrezia Lamastra
lucrezia.lamastra@unicatt.it