



30 Novembre 2021

QUALE VALORIZZAZIONE TERRITORIALE DEI RISULTATI DEI PROGETTI DI RICERCA EUROPEI?

Workshop per presentare alcune ricadute territoriali dei progetti finanziati nell'ambito della bioeconomia in Horizon 2020

LE RICADUTE TERRITORIALI DEI PROGETTI EUROPEI

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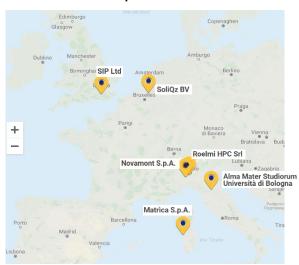


Facts & Numbers

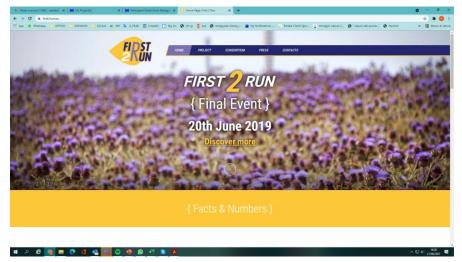
"FLAGSHIP DEMONSTRATION OF AN INTEGRATED BIOREFINERY FOR DRY CROPS SUSTAINABLE EXPLOITATION TOWARDS BIOBASED MATERIALS PRODUCTION"

- Horizon 2020 / BBI-JU; Call: H2020-BBI-PPP-2014-1
- Topic: BBI.VC3.F1/ Type of action: BBI-IA-FLAG
- Action type: innovation action
- 6 partners from 3 different countries

- Starting date: 01/07/2015 and duration of 48 months
- Number of Work packages: 8
- Number of expected deliverables: 44
- Number of Milestones: 6







THE TOTAL EFFORT IN THE PROJECT IS RELEVANT WITH A **TOTAL ELIGIBLE COSTS** CLAIMED OF **32.260.828,51 €** WITH A TOTAL **IN-KIND CONTRIBUTION** OF **15.264.946,51 €** AND ADDITIONAL INVESTMENTS OF **57.5 MI €** (MAX GRANT: 16.995.882,00 €)



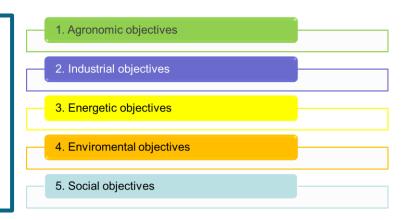






Project scope and objectives

The FIRST2RUN project aims at demonstrating the technical, economic, environmental and social sustainability at pre-industrial/large scale (TRL8) of a value chain in which low input and underutilized oil crops (i.e. cardoon) grown in arid and marginal lands and not in competition with food nor feed, are exploited for the extraction of vegetable oils to be further converted into bio-monomers (mainly pelargonic and azelaic acids) as building blocks for high added value bioproducts, biolubricants, cosmetics, bioplastics, additives through the integration of chemical and biotechnological processes.



OBJECTIVES

- Large scale cultivation, thanks to strong involvement and support of local farmers, of low input and underutilized oil crops
- Application of sustainable processes to produce biobased azelaic and pelargonic acid and demonstration at flagship scale;
- Integration of chemical and biotech processes for biobased and low impact biolubricants, bioplastics and cosmetics
- Valorization of downstream process by- and co- products, as feed as well as the use compost (coming from the composting of bioplastics) to improve soil fertility
- Increase of the energy independency of the biorefinery from fossil energy sources while increasing the process efficiency
- Push the adoption of new business models of collaboration among the different key players of the whole value chain









The results in numbers











	PROTEIC MEAL	BIOMASS	BIOPLASTICS	COSMETICS	BIOLUBRICANTS
APPLICATION	Feed for sheep and poultry	Bioenergy	Mulch film	Blush formulation	Hydraulic oil
BENCHMARK	Soybean meal	Wood chips	Low density polyethylene (incineration)	silicones and nylon	Fossil lubricants
GWP	-82%	-23%	-57%	-50%	-50%
NRER	-28%	-42%	-62%	-50%	-50%

- The GWP and NRER savings related to the First2Run agro-industrial value chain implementation processes have been estimated to be respectively around 63% and 46% compared to standard value chain for obtaining benchmark products.
- New bio-based products (Azelaic Acid, Pelargonic Acid) as key tool for "making more with less" in bioplastics, cosmetics, lubricants
- Proteic meal, biodegradable in soil mulch film and biolubricants have been validated directly by farmers along the project
- 150 events and more than 10,000 outreached stakeholder; dissemination activities are still in progress









The results beyond the numbers

New cross sector interconnections:



AGRICULTURE AND INDUSTRY (BIOREFINERY)

FOR:

- implementation of large scale cultivation of oil crops in marginal lands
- valorization of residues and by-products from new agroindustrial value chain
- new BBs and intermediates production



INDUSTRY (BIOREFINERY) AND END-USERS (MOSTLY SMES)

for the development and application of new biolubricants, cosmetics and bioplastics products



INDUSTRY (BIOREFINERY) AND TECHNOLOGY **PROVIDERS / RTO**

for the realization of enhanced equipment needed along the new value chain









Beyond First2Run

REVITALIZATION OF MARGINAL LANDS

- Recovery of abandoned / polluted / marginalized and not competitive lands.
- Cultivation of low-inputs oil crops (cardoon, safflower, rapeseed, etc) including the use of bioherbicides, compost / biochar and advanced agricultural machines.

MULTI-PURPOSE CIRCULAR FARM



TRAINING AND INCUBATOR OF SMEs and START-UPs

- Network with start-up and SMEs for bioprocesses and bioproducts development (collaboration with Fondazione Cariplo)
- Training sessions organization for other farmers

FROM CROPS TO BIOPRODUCTS

- Integration of seeds crushing to obtain vegetable oils to be delivered to the biorefinery
- Lignocellulosic biomass for bioenergy and biochar production in advanced pyrogasification plants
- Roots for sugars mobilization and active molecules obtainment
 Flowers as ingredient for food

BY-PRODUCTS VALORISATION

- Oil meal as feed for animals / aquaculture and biostimulants for agriculture
- Active molecules from seeds treatment for cosmetic, nutraceutic and pharmaceutical applications
- Organic waste for biogas and compost
- Off-gas CO, to grow microalgae

FOOD SECTION

- Breeding of animals fed by innovative oil meal
- Food (milk and cheese) with enhanced nutritional properties
- Food crops obtained through organic farm protocols application including of biostimulants from oilseeds meal, biodegradable mulching films, bioherbicides

MULTIPURPOSE CIRCULAR FARM (MCF)

interconnected with the biobased industry, which could:

- Promote oleaginous low input dry crops with the ability to regenerate organic carbon in soil
- Valorize of biowastes / byproducts from agri-food as feedstock
- Reduce of the environmental impact on soil, water and air through the use biobased products which don't accumulate in soil)
- Diversify their business by increasing the range of biobased intermediates that they can obtain and directly sell from on-site transformation of the oil crops fractions

FIRST BIOPRODUCTS NOW COMMERCIALLY AVAILABLE:

- BIOLUBRICANTS FOR APPLICATION INTO AGRICULTURAL MACHINES
- PELARGONIC ACID FORMULATIONS

2015 agreement with Coldiretti for cardoon cultivation

2019 agreement with Coldiretti for sunflower oil 2021 a company dedicated to finished products for farmers together with Coldiretti











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GRAZIE PER L'ATTENZIONE

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