

# SCALE-UP Information Package

*T2.4 Review and preparation of existing scientific and technological information supporting bio-based solutions*

**Region:** Andalusia

**Organization:** CTA (Technological Corporation of Andalusia)

**Biomass stream/value chains:** Olive value chain

**Bio-based solutions:**

1. Biofertiligation through reutilization of wastewater from olive processing (alpechin).
2. Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.

This information package aims at reviewing and collecting information relevant to the SCALE-UP project and for the regional platforms. Relevant studies should aim at supporting the bio-economy rollout in the SCALE-UP regions and of the specific bio-based solutions.

*Information on the following topics will be gathered:*

1. EU Policies and legislation
2. Research projects
3. Local policies
4. Technical Information on specific biobased solutions
5. Biomass availability & Nutrient recycling



# 1. EU Policies & Legislation

Please add the EU policies and legislation that you find relevant to the SCALE-UP project and for your bio-based solution.

Other sources of interest:

[JRC Knowledge Centre for Bioeconomy \(English\)](#)

[JRC Knowledge Centre for Bioeconomy \(Spanish\)](#)

## List of important EU policies and legislation

Date of adoption	Date last updated (optional)	Name	Link	Translation link (English to Spanish)	Summary of contents	Relevance to the SCALE-UP project	Relevance to the specific bio-based solutions
07-2022	12-2023	<b>EU Olive Oil Legislation</b>	<a href="https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R2104">https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R2104</a>		This Regulation lays down rules: (a) on the characteristics of the olive oils. (b) on specific marketing standards for the olive oils when sold to the final consumer, presented in the natural state or in a foodstuff.	The EU has established legislation defining the different categories of olive oils, the methods of analysis and the labelling and packaging rules for olive oil products. This legislation allows for a better general knowledge of the olive value chain, which is the one represented in the Andalusian region in the SCALE UP project.	To increase knowledge of the olive value chain. This legislation includes the following points: Categories of olive oil, Packaging, Labelling, Legal name and labelling of category of oils, Special storage conditions, Place of origin or Indication of the harvesting year, among others.
12-2019		<b>European Green Deal</b>	<a href="https://ec.europa.eu/commission/presscorner/detail/en/ip19_6691">https://ec.europa.eu/commission/presscorner/detail/en/ip19_6691</a>	<a href="https://commission.europa.eu.translate.google.com/strategy-and-policy/priorities-2019-2024/european-green-deal-en?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://commission.europa.eu.translate.google.com/strategy-and-policy/priorities-2019-2024/european-green-deal-en?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	European Green Deal is a set of comprehensive and integrated to transform the EU into a modern, resource-efficient and competitive economy, ensuring no net emissions of green house gases by 2050 and economic growth decoupled from resource use.	The Green Deal includes measures in agriculture on the reduction of environmental and climate footprint and increase of competitive sustainability from farm to fork (see below). In the energy sector the Green Deal includes measures to promote eco design of products and renewable energy from sustainable biomass resources.	"The European Green Deal is a showcase of how to transform the way we produce and consume, to achieve a healthier way of life and the creation of innovative businesses. It sets goals for securing natural heritage, biodiversity, forests and seas. Showing a sustainable and competitive character. To this end, the European Green Deal promotes the transformation of our economic model. It sets out how to reduce emissions, restore the health of our natural environment, protect our wildlife, create new economic opportunities and improve the quality of life of our citizens, through the development of various tools, projects and associated legislation.
01-2023		<b>Common Agricultural Policy (CAP) CAP 2023-27</b>	<a href="https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-glance_en#cap2023-27">https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-glance_en#cap2023-27</a>	<a href="https://agriculture.ec.europa.eu.translate.google.com/common-agricultural-policy/cap-overview/cap-glance-en?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp#cap2023-27">https://agriculture.ec.europa.eu.translate.google.com/common-agricultural-policy/cap-overview/cap-glance-en?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp#cap2023-27</a>	The CAP 2023-2027 must be oriented more than ever to respond to the specific needs of the agricultural sector and rural areas in terms of equity, distribution of support, instruments and characteristics, after the serious health crisis caused by COVID. To achieve these objectives, the CAP is focusing on innovation, CAP Strategic Plans (in line with the objectives and targets of the "Green Deal"), giving the EU a greener and fairer CAP.	The CAP 2023-2027 includes "support for rural development" as one of its focal points through the development of a wide range of tools including: Funding for investment, knowledge creation, innovation and cooperation will in many cases be targeted at environmental and climate-related needs, but will also serve other CAP objectives.	Within the CAP 2023-2027, it is indicated that the improvement of existing requirements is also a necessary condition for the improvement of agricultural sustainability, for this purpose, measures are proposed to improve soil health in the long term, so farmers are required to carry out beneficial crop rotations (among other measures). On the other hand, a wide range of types of action are proposed, including ecosystems that support voluntary actions related to better nutrient management, agroecology, agroforestry, carbon farming or animal welfare (among others).

4	02-2012	01-2018	<b>EU bioeconomy strategy</b>	<a href="https://op.europa.eu/en/publication-detail/-/publication/edace3e3-e189-11e8-b690-01aa75ed71a1/language-en/format-PDF/source-149755478">https://op.europa.eu/en/publication-detail/-/publication/edace3e3-e189-11e8-b690-01aa75ed71a1/language-en/format-PDF/source-149755478</a>	<a href="https://op.europa.eu.translate.google.com/publication-detail/-/publication/edace3e3-e189-11e8-b690-01aa75ed71a1/language-en/format-PDF/source-149755478?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://op.europa.eu.translate.google.com/publication-detail/-/publication/edace3e3-e189-11e8-b690-01aa75ed71a1/language-en/format-PDF/source-149755478?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	The 2012 European Bioeconomy Strategy paved the way for a more innovative, resource-efficient and competitive society that reconciles food security with the sustainable use of renewable resources for industrial purposes, while ensuring environmental protection. A comprehensive review concluded that it has been a success, notably at mobilising research and innovation, boosting private investments, developing new value chains, promoting the uptake of national bioeconomy strategies and involving stakeholders.	The EU bioeconomy strategy aims at strengthening and scaling-up bio-based sectors, as well as deploying local bioeconomies across Europe. Through: -The deployment of the bioeconomy will lead to the creation of jobs, especially in rural areas through the growing participation of primary producers in local bioeconomies. -The bioeconomy strategy sets as one of its main goals to support research and innovation and deployment of innovative solutions for the production of new and sustainable bio-based products. -A Strategic Deployment Agenda will be developed, which will provide a long-term vision on pathways to deploy and scale up the bioeconomy in a sustainable and circular manner. <i>Enhance synergies between</i>	Relevant to the specific bio-based solutions: -It aims at increasing the availability of secondary materials (such as feed and biowaste) for further exploitation through conventional technologies (e.g. composting and anaerobic digestion) and innovative ways of extracting valuable substances. Innovation is expected to support markets for bio-based products, where one industry's waste becomes the starting material for another. -It addresses new opportunities for the forestry sector, where non-sustainable raw materials in various sectors are replaced with forestry-based materials and chemicals. -Biowaste and residues can be used as valuable resources and can help reduce food waste by 50% by 2030.
5			<b>European Digital Strategy</b>	<a href="https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age_en">https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age_en</a>	<a href="https://commission.europa.eu.translate.google.com/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age_en?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://commission.europa.eu.translate.google.com/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age_en?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	The EU's digital strategy aims to make this transformation work for people and businesses, while helping to achieve its target of a climate-neutral Europe by 2050.	EU's digital strategy recognises that digital technologies are profoundly changing our world, and generate an ever-increasing amount of data, which if pooled and used properly, can lead to completely new means and levels of value creation, leading towards more sustainable solutions which are resource-efficient, circular and climate-neutral.	Real time tracking, new, added-value creations, interconnections, boosting bio-based solutions driven by new, high and/or deep technologies
6	05-2020		<b>Farm to Fork strategy</b>	<a href="https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en">https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en</a>	<a href="https://food.ec.europa.eu.translate.google.com/horizontal-topics/farm-fork-strategy_en?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp">https://food.ec.europa.eu.translate.google.com/horizontal-topics/farm-fork-strategy_en?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp</a>	The Farm to Fork Strategy is a set of measures to accelerate the transition to a sustainable food system that should have a neutral or positive environmental impact help to mitigate climate change and adapt to its impacts, reverse the loss of biodiversity ensure food security, nutrition and public health, making sure that everyone has access to sufficient, safe, nutritious, sustainable food preserve affordability of food while generating fairer economic returns, fostering competitiveness of the EU supply sector and promoting fair trade.	The Farm to Fork Strategy includes measures to promote sustainable food production and processing (including nutrient recycling). This includes measures on the compativeness of the EU food supply sector including use of residues for bioproducts	
7	02-2020		<b>European data strategy</b>	<a href="https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en">https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en</a>	<a href="https://commission.europa.eu.translate.google.com/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://commission.europa.eu.translate.google.com/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	The European data strategy aims to make the EU a leader in a data-driven society. Creating a single market for data will allow it to flow freely within the EU and across sectors for the benefit of businesses, researchers and public administrations.	The EU is creating a single market for data where data can flow within the EU and across sectors, for the benefit of all European rules, in particular privacy and data protection, as well as competition law, are fully respected the rules for access and use of data are fair, practical and clear	By having more information, consumers and users such as farmers, airlines or construction companies will be in a position to take better decisions such as buying higher quality or more sustainable products and services, thereby contributing for example to the Green Deal objectives.



## 2. Research Projects

Please add Interreg, Horizon 2020, Horizon Europe projects, and other projects that you find relevant to the SCALE-UP project and for your bio-based solutions.

Other sources of interest:

[JRC Knowledge Centre for Bioeconomy \(English\)](#)

[JRC Knowledge Centre for Bioeconomy \(Spanish\)](#)

### List of relevant projects

Start month	End month	Name	Project website	Translation link (English to Spanish)	Project summary	Relevance to the SCALE-UP project	Relevance to the specific bio-based solutions	Activities of interest	Comments	
1	1-9-2022	1-8-2025	<b>MainstreamBIO</b>	<a href="https://mainstreambio-project.eu/">https://mainstreambio-project.eu/</a>	<a href="https://mainstreambio-project.eu.translate.google/?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://mainstreambio-project.eu.translate.google/?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	MainstreamBIO sets out to get small-scale bio-based solutions into mainstream practice across rural Europe, providing a broader range of rural actors with the opportunity to engage in and speed up the development of the bioeconomy. Regional Multi-actor Innovation Platforms (MIPs) will be established in 7 EU countries (PL, DK, SE, BG, ES, IE and NL) to enhance cooperation among key rural players towards co-creating sustainable business model pathways in line with regional potentials and policy initiatives.	Case study in Spain (focused on increasing awareness and promote the adoption of small-scale bio-based solutions in rural areas, while also facilitating knowledge transfer and collaboration among various agents in the bioeconomy)	Innovation support services, Decision Support System, Multi-actor Innovation Platforms, Digitalisation and Practice abstracts. Some cases related with our 12 bio-based solutions (potential exchange of good practices and Knowledge)	WP4, WPS	SCALE-UP sister project
2	1-10-2022	1-9-2025	<b>RuralBioUp</b>	<a href="https://www.ruralbioup.eu/">https://www.ruralbioup.eu/</a>	<a href="https://www.ruralbioup.eu.translate.google/?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://www.ruralbioup.eu.translate.google/?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	RuralBioUp will strengthen the cooperation among regional key actors and knowledge holders, empowering them to establish an inclusive and long-lasting ecosystem (the RuralBioUp Regional Hubs) to support the mainstreaming of bio-based business models in rural areas. In particular, RuralBioUp will establish 9 Regional Hubs in 6 EU countries, that will co-design and implement 9 Action Plans on 18 value chains.	9 regional hubs (one multi-stakeholder hub) are established in 6 EU countries (France, Romania, Czech Republic, Ireland, Latvia and Italy). 9 Action Plans will be implemented in 18 value chains.	Biomass value chain development: Biomass logistic, Valorisation, Communities. Lessons learnt	WP4, WPS	SCALE-UP sister project
3	1-9-2022	1-8-2025	<b>BioRural</b>	<a href="https://biorural.eu/">https://biorural.eu/</a>	<a href="https://biorural.eu.translate.google/?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://biorural.eu.translate.google/?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	BioRural's goal is to create a European Rural Bioeconomy Network to promote small-scale bio-based solutions in rural areas and support the transition towards a sustainable, regenerative, inclusive and just circular Bioeconomy across all Europe at local and regional scale.	BioRural focusses on EU-level developments, it does not feature any regional case studies.	Rural Bioeconomy Alliance. Network. Cooperate to promote the currently available small-scale bio-based solutions		SCALE-UP sister project
4	1-6-2020	1-5-2024	<b>UP4HEALTH</b>	<a href="https://up4health.eu/">https://up4health.eu/</a>	<a href="https://up4health.eu.translate.google/?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=en&amp;x_tr_pto=wapp">https://up4health.eu.translate.google/?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=en&amp;x_tr_pto=wapp</a>	The UP4HEALTH project promotes the valorisation of food by-products in order to solve industrial, economic and social problems derived from the generation of waste flows in the food industry.	The project provides a pre-industrial scale demonstration of an integrated biorefinery where the recovery of biomolecules from food processing by-products (grape pomace, olive pomace and by-products from pits and nuts) and their conversion into natural, healthy and sustainable products with high added value.	The objectives of UP4HEALTH are: Development of a biorefinery of plant waste to obtain functional ingredients from various by-products or the selection of optimized processes through modelling and eco-design tools for scaling.		The following functional ingredients are obtained in UP4HEALTH: 1. Ingredients rich in phenolic compounds: fruit water, <b>oil extracts</b> and fiber (from grape, <b>olive</b> and nut pomace) 2. Xylo-oligosaccharide (XOS)
5	1-7-2021	1-6-2024	<b>OLEAF4VALUE</b>	<a href="https://oleaf4value.eu/">https://oleaf4value.eu/</a>	<a href="https://oleaf4value.eu.translate.google/?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://oleaf4value.eu.translate.google/?x_tr_sl=en&amp;x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	Using the recently established 4.0 concept—the Smart Dynamic Multi-Valorisation-Route Biorefinery (SAMBIO)—OLEAF4VALUE aims to provide the basis for six smart value chains. This would enable the cascading valorisation of olive leaf biomass based on its original composition, as determined by the Biomass Suitability Index (BSI).	Case study focused on olive biomass.	This project aims to exploit the biomass from the olive leaf, which is currently under-exploited, burned in the fields, fed to livestock or, in some cases, burned to produce energy.		OLEAF4VALUE aims to establish a stable and industrial supply chain that can efficiently and economically valorize olive pruning leaves (OPL) and olive mill leaves (OML).

UNDER REVIEW - DO NOT CITE

6	1-4-2019	1-7-2022	<b>BE-Rural</b>	<a href="https://be-rural.eu/">https://be-rural.eu/</a>	<a href="https://1-be-rural-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://1-be-rural-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	BE-Rural aimed at exploring the potential of regional and local bio-based economies and support the development of bioeconomy strategies, roadmaps and business models. To this end, the project focused on establishing Open Innovation Platforms (OIPs) within selected regions in five countries: Bulgaria, Latvia, North Macedonia, Poland and Romania.	Case study in North Macedonia (focussing on Mycelium-based packaging and insulation material); Case study in Latvia (focussing on wood wool)	D5.1 "Briefing paper: Analysing market conditions and designing business models within BE-Rural's OIPs"; D5.2 "Summary report on small-scale bio-based business models and their market potentials"; D5.4 "Note on the development of a sustainability screening for regional bioeconomy strategies"	Power4Bio sister project	
7	1-10-2018	1-3-2021	<b>POWER4BIO</b>	<a href="https://power4bio.eu/">https://power4bio.eu/</a>	<a href="https://power4bio-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://power4bio-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	POWER4BIO project aimed at empowering regional stakeholders to boost the transition towards bioeconomy regions in Europe by providing them with the necessary tools, instruments and guidance to develop and implement sound sustainable bioeconomy strategies. POWER4BIO targeted 10 regions with a focus on regions in Central and Eastern Europe.	Case study in Andalusia (focussing on Bioeconomy Strategy and Available Biomass Sources At Regional Level (Olive Biomass, Intensive Horticulture and Seaweed production))	D3.3 "Catalogue with bio-based solutions"; D6.4 "Training design and materials for increasing the bioeconomy capacity of regional stakeholders"	BE-Rural sister project; certain outputs related to the development of bio-based solutions were classified as confidential and are thus not publicly available.	
<b>Other projects</b>										
Start month	End month	Name	Project website	Translation link (English to Spanish)	Project summary	Relevance to SCALE-UP	Comments			
1	09-2022	08-2025	<b>ShapingBio</b>	<a href="https://www.shapingbio.eu/">https://www.shapingbio.eu/</a>	<a href="https://www-shapingbio-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://www-shapingbio-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	The overall aim of ShapingBio is to support and accelerate bioeconomy innovation and the deployment of new knowledge in the EU and its member states. ShapingBio aims to provide evidence-based and concrete information and recommendations for better policy alignment and stakeholder actions to realize the cross-sectoral potential of the bioeconomy and to reduce the fragmentation across bio-based sectors and food system and policies across regions, domains and governance levels.	Promote innovation in the EU bioeconomy.	ShapingBio focusses on EU macro-regions, it does not feature any rural case studies.		
2	07-2022	06-2025	<b>BioModel4Regions</b>	<a href="https://www.biomodel4regions.eu/">https://www.biomodel4regions.eu/</a>	<a href="https://www-biomodel4regions-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://www-biomodel4regions-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	BIOMODEL4REGIONS aims to support the establishment of the innovative governance models at local/regional level to achieve better-informed decision-making processes, social engagement and innovation to support and strengthen EU and international science-policy interfaces to achieve the Sustainable Development Goals.	Support regional bioeconomies.			
3	09-2022	08-2025	<b>CEE2ACT</b>	<a href="https://www.cee2act.eu/">https://www.cee2act.eu/</a>	<a href="https://www-cee2act-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://www-cee2act-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	CEE2ACT will empower countries in Central Eastern Europe and beyond to develop circular bioeconomy strategies and action plans through knowledge transfer and innovative governance models enabling sustainability and resilience to achieve better informed decision-making processes, societal engagement and innovation, building on the practice of experienced countries serving as role models.	Development of bioeconomy strategies.	CEE2ACT focusses on national-level developments, it does not feature any regional/rural case studies.		
4	09-2022	08-2025	<b>ROBIN</b>	<a href="https://robin-project.eu/">https://robin-project.eu/</a>	<a href="https://robin-project-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://robin-project-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	ROBIN aims to empower Europe's regions to adapt their governance models and structures in ways that accelerate the achievement of their circular bioeconomy targets while promoting social innovation and accounting for different territorial contexts. In this context, ROBIN will support 5 regional authorities across Europe (Southern Region of Ireland, Central Macedonia, Andalusia, Baden-Wuerttemberg, Zilina) to adapt their governance models to support the scaling up of the bio-based value chains of their ecosystem.	Regional bioeconomy development, as well as social innovation in the bioeconomy, which is covered in WP5 of SCALE-UP.			
5	06-2022	05-2025	<b>RELIEF</b>	<a href="https://relief.uop.gr/">https://relief.uop.gr/</a>	<a href="https://relief-uop-gr.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://relief-uop-gr.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	RELIEF aims to develop and deliver an innovative approach for teaching bio-economy in farming, by developing specific learning resources addressing HEIs students and farming practitioners. RELIEF will deliver a training needs analysis and develop two curricula in bio-economy, for HE students, farming practitioners and farmers exploring the key areas that are critical for the implementation of business models and strategies towards bio-economy in farming.	Training courses on bioeconomy, also covered in WP3 of SCALE-UP.			
6	01-2021	06-2023	<b>COOPID</b>	<a href="https://coopid.eu/">https://coopid.eu/</a>	<a href="https://coopid-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://coopid-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	Wtin COOPID, a network of bioeconomy clusters from 10 European countries has been created, involving a range of stakeholders: primary producers, in cooperatives or associations, within agriculture, forestry and aquaculture; industry; public sector; research and academia. So-called COOPID ambassadors showcased success stories, organised workshops and conducted interactive dissemination and communication campaigns. The focus was on the uptake of sustainable bio-based business models in the primary production sector.	Development of bioeconomy clusters.	D4.2 "Success story factors for biobased Business models"		
7	12-2022	11-2026	<b>P2Green</b>	<a href="https://p2green.eu/">https://p2green.eu/</a>	<a href="https://p2green-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp">https://p2green-eu.translate.googleusercontent.com/s/en?x_tr_tl=es&amp;x_tr_hl=nl&amp;x_tr_pto=wapp</a>	P2Green will implement and demonstrate innovative N & P recovery solutions based on human sanitary waste from urban settlements and its conversion into safe bio-based fertilisers for agricultural production. The project will test the solutions in three pilot regions on a north-south trajectory.	Nutrient recovery is a part of SCALE-UP.			



### 3. Regional, National & Local policies

Please add the local policies (including strategies, roadmaps, incentives, subsidy schemes and regulatory information) that you find relevant to the SCALE-UP project and to your bio-based solutions. Please also look into your country's CAP Strategic Plans and see whether this is relevant to you.

#### List of relevant policies

Year	Regional/Provincial/National	Title	Title (original language)	Link	Translation link (Spanish -> English)	Author/Publisher:	Summary of contents	Relevance to the SCALE-UP project	Relevance to the specific bio-based solutions	Comments
1	2022	National	Law 7/2022 of 8 April on waste and contaminated soils for a circular economy.	Ley 7/2022, de 8 de abril, de residuos y suelos contaminados para una economía circular.	<a href="https://www.boe.es/buscar/doc.php?id=BOE-A-2022-5809&amp;x_tr_tit=&amp;x_tr_hl=en;US&amp;x_tr_pto=wapp">https://www.boe.es/buscar/doc.php?id=BOE-A-2022-5809&amp;x_tr_tit=&amp;x_tr_hl=en;US&amp;x_tr_pto=wapp</a>	Government of Spain (Ministry of the Presidency, Relations with the Courts and Democratic Memory State Agency (Official State Gazette))	The Law aims to establish the principles of the circular economy through basic legislation on waste, as well as contributing to the fight against climate change and protecting the marine environment.	This law is important because it seeks to promote an efficient use of resources, with a firm strategic commitment from all public administrations, as well as to achieve the joint involvement and commitment of the economic and social agents that are essential for regional scaling up.	This law includes by-products, in our case biochemical compounds resulting from olive processing activities, and differentiates them from waste, considering them as substances resulting from a production process that can be used without undergoing further processing other than normal industrial practice.	
2	2018	Regional	Andalusia's Circular Bioeconomy Strategy	Estrategia Andaluza de Bioeconomía Circular	<a href="https://www.juntadeandalucia.es/portal/drupal/da/Estrategia%20Andaluza%20de%20Bioeconomia%20Circular_18.09.2018.pdf">https://www.juntadeandalucia.es/portal/drupal/da/Estrategia%20Andaluza%20de%20Bioeconomia%20Circular_18.09.2018.pdf</a> <a href="https://www.juntadeandalucia.es/oranismo/transparencia/plantificacion/evaluacion-estadistica/planes/detalle/155202.html?x_tr_sl=es&amp;x_tr_tl=es&amp;x_tr_hl=en;US&amp;x_tr_pto=wapp#oc-documentos-del-plan">https://www.juntadeandalucia.es/oranismo/transparencia/plantificacion/evaluacion-estadistica/planes/detalle/155202.html?x_tr_sl=es&amp;x_tr_tl=es&amp;x_tr_hl=en;US&amp;x_tr_pto=wapp#oc-documentos-del-plan</a>	Junta de Andalucía	The general objective of the Andalusian Circular Bioeconomy Strategy is: To contribute to the growth and sustainable development of Andalusia by promoting actions aimed at fostering the production of renewable biological resources and processes.  The achievement of this general objective involves giving continuity to and reinforcing those actions that are currently being developed to sustainably produce renewable biological resources and processes and, at the same time, promoting new actions that need support, mainly public, which in the medium to long term will act as a driving force for change in the Andalusian economy, giving way to a model based on the bioeconomy.	The Andalusian Circular Bioeconomy Strategy focuses on the set of activities that make up the three basic segments that make up the value chains of bioproducts and bioenergy in a framework of sustainable use of resources, specifically, the production of biomass, its technological processing and the consumer markets for the bioproducts obtained.	The Andalusian Circular Bioeconomy Strategy is based on the following strategic objectives that directly benefit the olive value chain:  1. Increasing the availability of sustainable biomass for use through innovative treatments. 2. Increase in the volume of bioindustries and bioenergies in Andalusia. 3. Increased markets and consumption of bioproducts and bioenergy in Andalusia. So all three objectives coincide with our bio-based solutions.	Period of validity: 19/09/2018 - 31/12/2030
3	2015	Regional	MASTER PLAN FOR THE ANDALUSIAN OLIVE GROVE	PLAN DIRECTOR DEL OLIVAR ANDALUZ	<a href="https://www.juntadeandalucia.es/portal/drupal/da/Plan%20Director%20del%20Olivar.pdf">https://www.juntadeandalucia.es/portal/drupal/da/Plan%20Director%20del%20Olivar.pdf</a>	Junta de Andalucía (Regional Ministry of Agriculture, Fisheries and Rural Development)	The public authorities must take action to promote the sustainable development of olive-growing areas, since, apart from olive growing itself, it is important to note the decisive importance, both socially and economically, of the processing and distribution of olive products, including by-products, which are the main activity of many Andalusian villages.  For this reason, together with the intervention of the public authorities, actions emanating from the private sector and civil society should be considered so that a common commitment and a desirable synergy between actors and territories can be achieved in order to ensure proper governance in olive-growing regions.	The Master Plan for the Andalusian olive grove promotes an economy capable of making efficient use of resources, greener and more competitive and an inclusive growth with a high level of employment and high social and territorial cohesion essential for scaling up.  Outlines the strategy of the Olive Sector towards a competitive and sustainable olive sector. This plan can be seen as a basis for a more specific bioeconomy and circular economy strategy. Created by the olive sector, it is still a single-sector plan, but it involves different measures to increase the utilization of by-products from the current olive biorefinery complex. In fact, many SME's active in extracting new products from the olive are from the olive sector and could contribute to creating a bridge towards the chemicals sector.	This plan sets out the outline of the agents in the olive value chain and the vertical and horizontal relationships. For example, relations between farms and mills, and between mills and packers-refineries, establishing flows of goods, finance and information, which circulate in both directions and allow us to have a clearer idea of the phases in which bio-based solutions can be incorporated.	
4	2020	National	Spanish Circular Economy Strategy	Estrategia Española de Economía Circular	<a href="https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/economia-circular/estrategia/">https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/economia-circular/estrategia/</a> <a href="https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/economia-circular/espacircular2030_def1_tc_m30-509532_mod_tcm30-509532.pdf">https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/economia-circular/espacircular2030_def1_tc_m30-509532_mod_tcm30-509532.pdf</a>	Ministry for the ecological transition and the demographic challenge	The Spanish Circular Economy Strategy, Spain Circular 2030, lays the foundations for promoting a new model of production and consumption in which the value of products, materials and resources is maintained in the economy for as long as possible, in which the generation of waste is minimised and those that cannot be avoided are used to the greatest possible extent. The Strategy thus contributes to Spain's efforts to achieve a sustainable, decarbonised, resource-efficient and competitive economy. This strategy will be materialised through successive three-year action plans. The strategic principles and guidelines are designed to comply with Article 45 of the Spanish Constitution.	The Strategy fits in with the most recent international initiatives to safeguard a healthy environment: the Paris Agreement on climate change, the 2030 Agenda for Sustainable Development, and the Ministerial Declaration of the United Nations Environment Assembly "Towards a pollution-free planet", agreed in December 2017 in Nairobi. It is also consistent with the lines of action promoted within the framework of the European Union, such as the European Green Pact and the European Commission's two plans in this area, making it an essential strategy for scaling up in the	Targets include improving water use efficiency by 10%, increasing resource reuse and reducing food waste generation, therefore these measures apply directly to our bio-based solutions 1 and 2 respectively.	The Strategy has a long-term vision, Spain Circular 2030, which will be achieved through successive three-year action plans to be developed, which will incorporate the necessary adjustments to complete the transition by 2030.
5	2018	National	The Spanish Bioeconomy Strategy	Estrategia Española de Bioeconomía	<a href="https://knowledge4policy.ec.europa.eu/publication/spanish-bioeconomy-strategy-2030-horizon_en">https://knowledge4policy.ec.europa.eu/publication/spanish-bioeconomy-strategy-2030-horizon_en</a> <a href="https://bioeconomia.chil.me/download-doc/102159">https://bioeconomia.chil.me/download-doc/102159</a>	Ministry of Economy and Competitiveness. State Secretariat for Research, Development and Innovation	Spanish Bioeconomy Strategy is presented with the objective by 2030 of achieve more innovative, more competitive and more efficient companies, and a more diversified and environmentally more sustainable economy, advancing in the transition toward a circular economy.	The Bioeconomy strategy is designed to encourage economic activity and improve the competitiveness and sustainability of productive sectors linked to the use of resources whose base is biological.	A important activities included in this strategy and linked to the agroforestry sector relates to the extraction and transformation of timber, cork, resin, production of paper and of other industrial products, and extracting bioenergy and other bioproducts, uses and services linked to ecosystems, ranging from harvesting activities to final product. These productive processes, with great potential for generating employment and added value, involve major amounts of biomass associated with our Bio-based solutions 1 and 2.	
6	2019	EU Community	REGULATION (EU) 2019/1009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 5 June 2019 laying down rules on the making available on the market of EU fertilising products and amending Regulations (EC) No 1069/2009 and (EC) No 1107/2009 and repealing Regulation (EC) No 2003/2003	Reglamento (UE) 2019/1009 del Parlamento Europeo y del Consejo, de 5 de junio de 2019, por el que se establecen disposiciones relativas a la comercialización de los productos fertilizantes UE.	<a href="https://www.boe.es/buscar/doc.php?id=DOUE-L-2019-81081">https://www.boe.es/buscar/doc.php?id=DOUE-L-2019-81081</a> - <a href="https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32019R1009">https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32019R1009</a>	THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION	The Regulation is composed of the following Chapters: I) General provisions; II) Obligations of economic operators; III) Conformity of EU fertilising products; IV) Notification of conformity assessment bodies; V) Union market surveillance, control of EU fertilising products entering the Union market and Union safeguard procedure; VI) Delegated powers and Committee procedure; VII) Amendments; VIII) Transitional and final provisions.	This Regulation brings together a series of articles containing information on the nutrients that are part of the fertiliser (EC fertiliser), the traceability of the nutrients, labelling rules, packaging rules and the declaration of secondary nutrients and primary nutrient fertilisers.	This regulation is essential to know the technical characteristics that fertilisers must have and therefore the use we can make of them in bioferigation.	

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7	2023	Regional	Andalusian Biodiversity Strategy Horizon 2030	Estrategia Andaluza de Biodiversidad Horizonte 2030	<a href="https://www.juntadeandalucia.es/boj/2023/33/1/#~:text=La%20EAB%202030%20tiene%20como,la%20ciudadan%C3%ADa%7C%20a%20participar%3Bn%20v">https://www.juntadeandalucia.es/boj/2023/33/1/#~:text=La%20EAB%202030%20tiene%20como,la%20ciudadan%C3%ADa%7C%20a%20participar%3Bn%20v</a>	<a href="https://www.juntadeandalucia.es/boj/2023/33/1/#~:text=La%20EAB%202030%20tiene%20como,la%20ciudadan%C3%ADa%7C%20a%20participar%3Bn%20v">https://www.juntadeandalucia.es/boj/2023/33/1/#~:text=La%20EAB%202030%20tiene%20como,la%20ciudadan%C3%ADa%7C%20a%20participar%3Bn%20v</a>	Junta de Andalucía (Ministry of Sustainability, Environment and Blue Economy)	The EAB 2030 aims to establish a strategic framework to guarantee the conservation and sustainable use of biological diversity in Andalusia, based on key aspects such as the reinforcement of intersectoral coordination, inter-territorial cooperation, citizen involvement, participation and co-responsibility of social actors, responding to the commitments set out in our international, state and European spheres related to biodiversity management.	The general objective of this strategy is to conserve Andalusia's biodiversity and improve management to achieve the proper functioning of its ecosystems, promoting scaling up in this sector.	Given that it intends to improve management to achieve the proper functioning of ecosystems, it would help to improve the processes associated with the olive grove value chain and our recovery options (Biofertilization through reuse of wastewater from olive processing and Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics).	
8	2022	Regional	Integral Plan for Waste Plan of Andalusia	Plan Integral de Residuos de Andalucía	<a href="https://www.juntadeandalucia.es/medioambiente/portal/documentos/2015176999369/2021_10_19_PIRec_colegios.pdf?fc=1a646c-c393-79ca-c01-a913386b86ce?i=1634907843024">https://www.juntadeandalucia.es/medioambiente/portal/documentos/2015176999369/2021_10_19_PIRec_colegios.pdf?fc=1a646c-c393-79ca-c01-a913386b86ce?i=1634907843024</a>		Junta de Andalucía	The Andalusian Integrated Waste Plan, towards a Circular Economy in the 2030 horizon (PIRec 2030) was drawn up due to the need to revise the waste plans in force in order, on the one hand, to update their prevention, recycling, recovery and disposal objectives to the new European and state objectives, and on the other hand, to adapt their structure, contents, periods of validity, and frequency of evaluation and revision to the provisions of the State Waste Framework Plan and the new European guidelines. On the other hand, it arises at a time to reinforce and accelerate Andalusia's transition towards a circular economy, to boost competitiveness, create employment and promote sustainable growth.	This plan includes European, national and regional regulations on the use of industrial oils and agricultural waste, which are important to take into account for the circular economy and the olive value chain.	It is relevant because it shows the evolution of plant tissue waste generation in Andalusia and the provincial distribution of waste biomass generation. It can therefore serve as an indicator of the areas where there is more residual biomass available for reintroduction into the value chain to produce biofertilizers and cosmetics.	
9	2023	Regional	Network of Protected Natural Areas of Andalusia (RENPA)	Red de Espacios Naturales Protegidos de Andalucía (RENPA)	<a href="https://www.juntadeandalucia.es/medioambiente/portal/web/guest/areas-tematicas/espacios-protegidos/configuracion-renpa/superficie-red-espacios-naturales-protegidos-andalucia">https://www.juntadeandalucia.es/medioambiente/portal/web/guest/areas-tematicas/espacios-protegidos/configuracion-renpa/superficie-red-espacios-naturales-protegidos-andalucia</a>	<a href="https://www.juntadeandalucia.es/medioambiente/portal/areas-tematicas/espacios-protegidos/configuracion-renpa/superficie-red-espacios-naturales-protegidos-andalucia?_x_tr_sl=auto&amp;_x_tr_tl=en&amp;_x_tr_hl=en;US&amp;_x_tr_pto=wapp">https://www.juntadeandalucia.es/medioambiente/portal/areas-tematicas/espacios-protegidos/configuracion-renpa/superficie-red-espacios-naturales-protegidos-andalucia?_x_tr_sl=auto&amp;_x_tr_tl=en&amp;_x_tr_hl=en;US&amp;_x_tr_pto=wapp</a>	Junta de Andalucía (Ministry of Sustainability, Environment and Blue Economy)	In Andalusia, Rediam (Andalusian Environmental Information Network) is responsible for integrating and disseminating all the information generated by the different production centers, both public and private. At the same time, Rediam constitutes another center for the production and updating of numerous information on environmental issues. Anyone can access information on the environment. This right is guaranteed by Law 27/2006, of July 18.	The total area of RENPA is 2,918,582.04 hectares: Land surface: 2,836,400.24 hectares Marine surface: 82,181.80 hectares Some of these hectares have olive groves from our value chain under study.	Knowing the protected area is very important for our biological-based solution, since we could control the amount of biofertilization to apply in these areas through the reuse of wastewater from olive processing, thus achieving circular recycling.	
10	2018	EU Community	DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the promotion of the use of energy from renewable sources	Directiva (UE) 2018/2001 del Parlamento Europeo y del Consejo, de 11 de diciembre de 2018, relativa al fomento del uso de energía procedente de fuentes renovables (versión refundida sobre la directiva 2009/28/EC)	<a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02018L2001-20181221&amp;_x_tr_sl=auto&amp;_x_tr_tl=en;US&amp;_x_tr_pto=wapp">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02018L2001-20181221&amp;_x_tr_sl=auto&amp;_x_tr_tl=en;US&amp;_x_tr_pto=wapp</a>	<a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02018L2001-20181221&amp;_x_tr_sl=auto&amp;_x_tr_tl=en;US&amp;_x_tr_pto=wapp">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02018L2001-20181221&amp;_x_tr_sl=auto&amp;_x_tr_tl=en;US&amp;_x_tr_pto=wapp</a>	European Parliament and EU Council.	In accordance with Article 194(1) of the Treaty on the Functioning of the European Union (TFEU), the promotion of renewable energy sources is one of the objectives of the Union's energy policy. This Directive pursues that objective. The increased use of energy from renewable sources or renewable energy is an important part of the package of measures needed to reduce greenhouse gas emissions and to comply with the 2015 Paris Agreement on Climate Change.	It establishes sustainability and greenhouse gas emissions saving criteria for biofuels, bioliqids and biomass fuels.	When developing support schemes for renewable sources of energy, Member States should consider the available sustainable supply of biomass and take due account of the principles of the circular economy and of the waste hierarchy established in Directive 2008/96/EC in order to avoid unnecessary distortions of raw materials markets. Waste prevention and recycling of waste should be the priority option.	
11	2006	EU Community	COMMISSION REGULATION (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs	Reglamento (CE) no 1881/2006 de la Comisión, de 19 de diciembre de 2006, por el que se fija el contenido máximo de determinados contaminantes en los productos alimenticios	<a href="https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX:02006R1881-20191128">https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX:02006R1881-20191128</a>	<a href="https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX:02006R1881-20191128&amp;_x_tr_sl=auto&amp;_x_tr_tl=en&amp;_x_tr_hl=en;US&amp;_x_tr_pto=wapp">https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX:02006R1881-20191128&amp;_x_tr_sl=auto&amp;_x_tr_tl=en&amp;_x_tr_hl=en;US&amp;_x_tr_pto=wapp</a>	European Parliament and EU Council.	Sets maximum levels for certain contaminants in foodstuffs.	In the framework of Directive 93/5/EEC, a specific SCOOP-task 'Collection of occurrence data on PAH in food' has been performed in 2004(37). High levels were found in dried fruits, olive pomace oil, smoked fish, grape seed oil, smoked meat products, fresh molluscs, spices/sauces and condiments.	It is important to promote the use of residues from oil production and to valorise those organic components present in olive pomace oil that are harmful to health.	
12	2015	EU Community	Commission Regulation (EU) 2015/2002 amending Annexes IC and V to Regulation (EC) No. 1013/2006 of the European Parliament and of the Council on shipments of waste.	Reglamento (UE) 2015/2002 de la Comisión, de 10 de noviembre de 2015, por el que se modifican los anexos IC y V del Reglamento (CE) nº 1013/2006 del Parlamento Europeo y del Consejo, relativo a los traslados de residuos (Texto pertinente a efectos del EEE)	<a href="https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32016R1245&amp;from=EN">https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32016R1245&amp;from=EN</a>		European Commission.	On 28.07.2016, the Commission adopted an implementing act establishing a preliminary correlation table between customs and waste codes. This correlation table is intended to enhance the implementation of the Waste Shipment Regulation by making it easier for customs officials to identify potential waste streams. This regulation is in line with the additional measures foreseen by the Commission in its Circular Economy Action Plan.	One of the issues identified is the difficulty that the partners have in transporting waste from oil production and olive pruning, and the need for a regulation governing the transport and management of these products.	The knowledge of the current legislation on waste shipment and after identifying its weak points for the purpose of promoting the recycling of by-products such as those of the olive value chain, it will be possible to identify new needs and improvements that this law may require to be more in line with a sustainable economy.	

**CAP Strategic Plans**

Year	Regional/Provincial/National	Title	Title (original language)	Link	Author/Publisher:	Summary of contents	Relevance to the SCALE-UP project	Relevance to the specific bio-based solutions	Comments
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1	2021	National	Plan Estratégico de la PAC de España	Spain's Strategic Plan for the CAP	<a href="https://www.mapa.gob.es/pac/po-st-2020/pepac-sfc2021-v12_tcm30-623871.pdf">https://www.mapa.gob.es/pac/po-st-2020/pepac-sfc2021-v12_tcm30-623871.pdf</a>	<a href="https://www.mapa.gob.es/pac/po-st-2020/plan-estrategico-pac.aspx">https://www.mapa.gob.es/pac/po-st-2020/plan-estrategico-pac.aspx</a>	<a href="https://www.mapa.gob.es/translate_gooq/es/pac/pac-2023-2027/?x_tr_sl=auto&amp;x_tr_tl=en&amp;x_tr_hl=en_US&amp;x_tr_pto=wapp">https://www.mapa.gob.es/translate_gooq/es/pac/pac-2023-2027/?x_tr_sl=auto&amp;x_tr_tl=en&amp;x_tr_hl=en_US&amp;x_tr_pto=wapp</a>	Ministry of Agriculture, Fisheries and Food	<p>It is a very complete document that includes the interventions or measures that will be applied in 2023-2027 to respond to the needs of the Spanish countryside and thus achieve the objectives of the CAP and the ambition of the European Green Pact. With the reform of the CAP 2023-2027, a new approach is established whereby Member States must set out the details of the interventions or measures of the new CAP, through a strategic plan. For the first time, there is a single strategy covering all CAP interventions, which implies greater coherence between them. In addition, this reform has given greater flexibility to adapt CAP measures to national and regional specificities.</p>	<p>It includes a diagnosis and analysis of the needs of the agricultural sector and the rural environment as a whole, linked to each of the CAP objectives. This analysis took into account aspects as varied as the agricultural, economic, social and environmental conditions in Spain necessary for scaling up. In addition, this plan favours integration in associative entities and the creation of economies of scale, increases the economic dimension of the holdings and reduces the atomisation of production sectors such as the olive grove.</p>	<p>Establishes the intervention logic for the replanting of plantations or olive groves when plantations or olive groves when necessary. This factor is important for the use of biofertilisation in plantations.</p>	<p>It will apply from 2023 to 2027</p>
2	2017	National	Proposal for a Spanish position on the European Commission's initiative on "Modernisation and simplification of the CAP" (CAP Reform: Spanish position).	Propuesta de posición española en relación con la iniciativa de la Comisión Europea sobre "Modernización y simplificación de la PAC (Reforma PAC: postura española).	<a href="https://preservicio.mapama.gob.es/le/s/agricultura/temas/pac/postura-reforma-pac/default.aspx">https://preservicio.mapama.gob.es/le/s/agricultura/temas/pac/postura-reforma-pac/default.aspx</a>	<a href="https://www.mapa.gob.es/es/pac/historia-pac/">https://www.mapa.gob.es/es/pac/historia-pac/</a>	<a href="https://preservicio.mapama.gob.es/translate_gooq/en/agricultura/temas/pac/postura-reforma-pac/default.aspx?x_tr_sl=auto&amp;x_tr_tl=en_US&amp;x_tr_pto=wapp">https://preservicio.mapama.gob.es/translate_gooq/en/agricultura/temas/pac/postura-reforma-pac/default.aspx?x_tr_sl=auto&amp;x_tr_tl=en_US&amp;x_tr_pto=wapp</a>	Ministry of Agriculture, Fisheries and Food	<p>At the beginning of 2017, the European Commission launched a public consultation for a new CAP reform with the intention of establishing the Spanish position. On 27 and 28 March 2017, a Conference "Building the CAP of the future" was held, open to all agents in the sector and Autonomous Communities. As a result of the comments received, a proposal for a Spanish position was drawn up in relation to the European Commission's initiative on "Modernisation and simplification of the CAP". This proposal was presented and discussed at the Sectoral Conference on Agriculture and Rural Development held on 24 April 2017, where a common position was reached.</p>	<p>There continues to be a broad international consensus on the challenges facing agriculture in the coming decades, in particular the challenge of food security, due to the expected increase in world population and consumption, which in turn will make it necessary to address the challenge of preserving the environment and combating climate change, producing more food with fewer resources through the recycling of nutrients in value chains.</p>	<p>In this Spanish position, emphasis is placed on maintaining specific support programmes for fruit (including olives in our value chain) in order to reinforce the quality and added value of production. In addition, the direct CAP payments received by farmers and livestock farmers are boosted, thus constituting essential tools to face new challenges (biofertilisation, extraction of biochemical compounds, etc.).</p>	





## 4. Technical information on specific bio-based solutions

Please add technical information, including scientific information, peer-reviewed articles, reports, and other data or research that you find relevant to the bio-based solutions.

### List of relevant technical information

Solution 1: **Biofertilization through reutilization of wastewater from olive processing (alpechin).**

Solution 2: **Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.**

Solution 3: **Both**

Date	Author(s)	Title	Link	Translation link (English -> Spanish)	Organizations	Summary of contents	Relevant to which solution?	Why is it relevant?	
1	2021	Ministry of Agriculture, Livestock, Fisheries and Sustainable Development General Directorate of Natural Environment, Biodiversity and Protected Areas	<b>Methodology applied to calculate the RENPA surface</b>	<a href="https://www.juntadeandalucia.es/medioambiente/portal/areas-tematicas/espacios-protegidos/configuracion-renpa/superficie-red-espacios-naturales-protegidos-andalucia">https://www.juntadeandalucia.es/medioambiente/portal/areas-tematicas/espacios-protegidos/configuracion-renpa/superficie-red-espacios-naturales-protegidos-andalucia</a>	<a href="https://www.juntadeandalucia.es.translate.google.com/medioambiente/portal/areas-tematicas/espacios-protegidos/configuracion-renpa/superficie-red-espacios-naturales-protegidos-andalucia?x_tr_sl=auto&amp;x_tr_t=en&amp;x_tr_h=ml&amp;x_tr_pto=wapp">https://www.juntadeandalucia.es.translate.google.com/medioambiente/portal/areas-tematicas/espacios-protegidos/configuracion-renpa/superficie-red-espacios-naturales-protegidos-andalucia?x_tr_sl=auto&amp;x_tr_t=en&amp;x_tr_h=ml&amp;x_tr_pto=wapp</a>	Junta de Andalucía	The RENPA Coordination and Management Service has updated the methodology to obtain the total area of the RENPA.  To obtain this methodology, the ESRI ArcMap 10.2.1 GIS software has been used. In addition, the Transverse Mercator projection, ETRS 1989 UTM Zone 30N coordinate system, was used.	Biofertilization through reutilization of wastewater from olive processing (alpechin).	Knowing the methodology of protected areas is very important for our biological-based solution, since we could control the amount of biofertilization to apply in these protected areas.
2	2020	Andalusian Energy Agency (Department of Finance, Industry and Energy)	<b>Bioenergy in Andalusia</b>	<a href="https://www.agenciaandaluzadelaenergia.es/es/biblioteca/la-bioenergia-en-andalucia">https://www.agenciaandaluzadelaenergia.es/es/biblioteca/la-bioenergia-en-andalucia</a>	<a href="https://www.agenciaandaluzadelaenergia.es.translate.google.com/es/biblioteca/la-bioenergia-en-andalucia?x_tr_sl=auto&amp;x_tr_t=en&amp;x_tr_h=ml&amp;x_tr_pto=wapp">https://www.agenciaandaluzadelaenergia.es.translate.google.com/es/biblioteca/la-bioenergia-en-andalucia?x_tr_sl=auto&amp;x_tr_t=en&amp;x_tr_h=ml&amp;x_tr_pto=wapp</a>	Andalusian Energy Agency (Department of Finance, Industry and Energy)	Situation of bioenergy in Andalusia. Main biomasses of Andalusia. Implementation of biomass and existing potential in Andalusia. Biomass applications. The business sector. Future's expectations.	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.	Knowing the existing biomass potential in Andalusia helps to know what percentage of bioactive compounds can be reused in the value chain.
3	2010	Junta de Andalucía (Ministry of Agriculture and Fisheries)	<b>ENERGY POTENTIAL OF THE BY-PRODUCTS OF THE OLIVE INDUSTRY IN ANDALUSIA</b>	<a href="https://www.juntadeandalucia.es/export/drupalida/Potencial%20energ%C3%A9tico.pdf">https://www.juntadeandalucia.es/export/drupalida/Potencial%20energ%C3%A9tico.pdf</a>	<a href="https://www.juntadeandalucia.es/export/drupalida/Potencial%20energ%C3%A9tico.pdf">https://www.juntadeandalucia.es/export/drupalida/Potencial%20energ%C3%A9tico.pdf</a>	Junta de Andalucía (Ministry of Agriculture and Fisheries)	Agro-industries of the olive grove and by-products with energy use derived from them and general information on the by-products of the industries of the olive sector	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.	Detailed description of the residues and solid by-products derived from the processing of olives. It is important to distinguish the different types of biomass originated during olive processing and to have a vision of the bioactive compounds that can be extracted from it.
4	2022	Magdalena Soledad Cifuentes Cabezas	<b>Recovery of polyphenols from olive mill effluents by membrane processes and biological treatment of reject streams</b>	<a href="https://riunet.upv.es/bitstream/handle/10251/191508/Cifuentes%20-%20Recuperacion%20de%20polifenoles%20de%20fluentes%20de%20almazara%20mediante%20procesos%20de%20membrana%20v%20...pdf?sequence=1">https://riunet.upv.es/bitstream/handle/10251/191508/Cifuentes%20-%20Recuperacion%20de%20polifenoles%20de%20fluentes%20de%20almazara%20mediante%20procesos%20de%20membrana%20v%20...pdf?sequence=1</a>	-	University of Valencia	Description of olive oil and table olive production, description of olive mill and table olive wastewater, wastewater management, membrane processes, adsorption/desorption processes, biological treatment, hybrid processes, ultrafiltration technique, nanofiltration, direct osmosis, adsorption/desorption with resins and characterisation of samples.	Both	This thesis is very relevant because it shows the techniques for the recovery of non-essential organic nutrients from olive mill effluents.
5	2016	Consultants- CIRCLE	<b>Andalusia as a model demonstrator region</b>	<a href="https://www.juntadeandalucia.es/export/drupalida/IRA_Andalusia_english.pdf">https://www.juntadeandalucia.es/export/drupalida/IRA_Andalusia_english.pdf</a>	-	Consultants-CIRCLE	This document is an assessment of the investment readiness of the region of Andalusia concerning investments in the area of Sustainable Chemicals. Sustainable Chemicals are defined as new chemical processes that use either biomass (agriculture and forestry), waste streams (organic waste streams and plastic waste) or CO2 as feedstock.	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.	Having sufficient alternative feedstocks available, a critical mass of chemical industry and also reasonable investment in biobased production, Andalusia is well positioned to further engage in sustainable production using biomass and waste.
6	2021	Jesús Marquina, María José Colinet and María del P. Pablo-Romero	<b>Measures to Promote Olive Grove Biomass in Spain and Andalusia: An Opportunity for Economic Recovery against COVID-19</b>	<a href="https://www.mdpi.com/2071-1050/13/20/11318">https://www.mdpi.com/2071-1050/13/20/11318</a>	<a href="https://www.mdpi.com.translate.google.com/2071-1050/13/20/11318?x_tr_sl=auto&amp;x_tr_t=en&amp;x_tr_h=ml&amp;x_tr_pto=wapp">https://www.mdpi.com.translate.google.com/2071-1050/13/20/11318?x_tr_sl=auto&amp;x_tr_t=en&amp;x_tr_h=ml&amp;x_tr_pto=wapp</a>	University of Seville	Olive grove biomass presents an opportunity to reduce greenhouse gases and meet the sustainability objectives set by Europe. Given the relevance of this organic matter, this paper analyzes the evolution and current situation of the regulations that regulate olive grove biomass as a source of energy in Europe, in Spain and in Andalusia.	Both	The results of this paper can be divided into three parts. In each of them, the main regulations and energy plans, approved in Europe, in Spain and in Andalusia, are analyzed. This highlights what effects the policies have had on the development of olive grove biomass, and what opportunities for increased waste usage would mean for the economic recovery after COVID-19.
7	2019	Antonio Alberto Rodríguez Sousa, Jesús M. Barandica and Alejandro Rescia	<b>Ecological and Economic Sustainability in Olive Groves with Different Irrigation. Management and Levels of Erosion: A Case Study</b>	<a href="https://www.mdpi.com/2071-1050/11/17/4681">https://www.mdpi.com/2071-1050/11/17/4681</a>	<a href="https://www.mdpi.com.translate.google.com/2071-1050/11/17/4681?x_tr_sl=auto&amp;x_tr_t=en&amp;x_tr_h=ml&amp;x_tr_pto=wapp">https://www.mdpi.com.translate.google.com/2071-1050/11/17/4681?x_tr_sl=auto&amp;x_tr_t=en&amp;x_tr_h=ml&amp;x_tr_pto=wapp</a>	Complutense University of Madrid	In this study, in an olive-growing region of Andalusia, Spain, the variation of several soil parameters related to irrigation and erosion levels was analysed. The results showed that irrigation, while increasing the productive level of the olive groves, entails a progressive alteration of the soil, modifying physical aspects (greater compaction and humidity of the soil together with lower gravel content, porosity and soil weight) and chemical aspects (reduction of the organic matter of the soil and the content of nitrates) that can aggravate the consequences of the erosive processes. In the long term, the productive benefit attributed to irrigation could be unsustainable from an ecological and, consequently, economic point of view.	Biofertilization through reutilization of wastewater from olive processing (alpechin).	In the long term, the productive benefit attributed to irrigation could be unsustainable from an ecological and, consequently, economic point of view. In addition, the lack of sustainability of olive irrigation agroecosystems could be exacerbated by the future restrictive impacts of climate change on water resources in Mediterranean environments.

8	2018	Antonio López-Pintor 1, Javier Sanz-Cañada 2, Ernesto Salas 3 and Alejandro J. Rescia	<b>Assessment of Agri-Environmental Externalities in Spanish Socio-Ecological Landscapes of Olive Groves</b>	<a href="https://www.mdpi.com/2071-1050/10/8/2640">https://www.mdpi.com/2071-1050/10/8/2640</a>	<a href="https://www.mdpi.com/translate/gooq/2071-1050/10/8/2640? x_tr_sl=auto&amp; x_tr_tl=en&amp; x_tr_hl=en&amp; x_tr_pto=wapp">https://www.mdpi.com/translate/gooq/2071-1050/10/8/2640? x_tr_sl=auto&amp; x_tr_tl=en&amp; x_tr_hl=en&amp; x_tr_pto=wapp</a>	Complutense University of Madrid	Traditional agricultural systems and their spatial context constitute socio-ecological landscapes for their long co-evolutionary history. However, these systems not only generate positive but also negative agri-environmental externalities, such as soil erosion, diffuse pollution and potential wild biodiversity degradation. In this paper, it presents a methodological approach for developing and testing indicators to estimate the effects of these externalities, especially designed to be used to help guide land-use policy changes. The Spanish socio-ecological landscape of olive groves, due to its extent, economic importance, cultural and social values, and data available, constitutes a paradigmatic case study in which to define and test the performance of indicators for these environmental externalities.	Biofertilization through reutilization of wastewater from olive processing (alpechin).	Indicators play an essential role in objectively assessing actions and processes involved in the ecological, economic, and social aspects of sustainable agriculture. Available indicators allow the farmers to contrast their farming practices related to nutrient balances and biofertilization, energy efficiency or productivity.
9	2020	Clara Castillo López- María Pilar Quesada	<b>Olive tree and by-products R&amp;D&amp;I</b>	<a href="https://www.um.es/documents/2918258/18875715/Escrita_CYT_IES+SanJuan+d+e+la+Cruz.pdf/b906405-eb64-4cc8-baf0-b0b16456dce1">https://www.um.es/documents/2918258/18875715/Escrita_CYT_IES+SanJuan+d+e+la+Cruz.pdf/b906405-eb64-4cc8-baf0-b0b16456dce1</a>		IES San Juan de la Cruz	The aim of this article is to: To learn about olive cultivation in Spain over 100 years, to study how a traditional and modern olive mill works, to study the relationship between olive oil and human health, to learn about the by-products of olive oil processing, to study the use of olive oil processing waste and to study the use of olive grove by-products as a benefit to the environment.	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.	Olive oil and table olives are not the only products we can obtain from the olive tree. With olive oil we can obtain cosmetic and food products and also make use of many by-products (pomace, olive pomace, olive pits and olive pruning branches), some of which have not been known to date: use as biofuel, for example. Through the use of appropriate technology we can obtain, from olive by-products thermal energy, electrical energy and even bioethanol from olive by-products.
10	2016	Ministry of Agriculture, Fisheries and Food	<b>Olive oil</b>	<a href="https://www.mapa.gob.es/es/agricultura/temas/producciones-agricolas/aceite-oliva-y-aceituna-mesa/aceite.aspx#cd-search">https://www.mapa.gob.es/es/agricultura/temas/producciones-agricolas/aceite-oliva-y-aceituna-mesa/aceite.aspx#cd-search</a>	<a href="https://www.mapa.gob.es/agricultura/temas/producciones-agricolas/aceite-oliva-y-aceituna-mesa/aceite.aspx? x_tr_sl=auto&amp; x_tr_tl=en&amp; x_tr_hl=en&amp; x_tr_pto=wapp#cd-search">https://www.mapa.gob.es/agricultura/temas/producciones-agricolas/aceite-oliva-y-aceituna-mesa/aceite.aspx? x_tr_sl=auto&amp; x_tr_tl=en&amp; x_tr_hl=en&amp; x_tr_pto=wapp#cd-search</a>	Ministry of Agriculture, Fisheries and Food	Spain is a world leader in surface area, production and foreign trade thanks to our country's olive-growing tradition and a technologically advanced and professional industry capable of obtaining high quality oils. Spanish olive oil production accounts for 70% of EU production and 45% of world production. At regional level, olive oil production is located in Andalusia with 80% of the total, where Jaén is the main producing province with approximately 37% of the total, followed by Castilla La Mancha with 8% and Extremadura with 4% of the national total.  The processes of transformation and distribution of its production, including its by-products, constitute the main activity of numerous municipalities and an associated industry which, in many cases, provides backbone and cohesion to the rural environment in which it is based, supported by a strong grassroots cooperative movement.	Both	It is relevant because it describes the olive sector in Spain, the surface area and production, details of foreign trade and the market situation of the olive grove.
11	2023	Andalusian Energy Agency (Andalusian Ministry of Industrial Policy and Energy)	<b>Map of biomass resources and Installations in Andalusia</b>	<a href="https://www.agenciaandaluzadelenergia.es/es/informacion-energetica/cartografia-energetica-de-andalucia/recursos-y-potencial-de-energias-renovables/mapa-de-recursos-e-instalaciones-de-biomasa-en-andalucia">https://www.agenciaandaluzadelenergia.es/es/informacion-energetica/cartografia-energetica-de-andalucia/recursos-y-potencial-de-energias-renovables/mapa-de-recursos-e-instalaciones-de-biomasa-en-andalucia</a>	<a href="https://www.agenciaandaluzadelenergia.es/es/informacion-energetica/cartografia-energetica-de-andalucia/recursos-y-potencial-de-energias-renovables/mapa-de-recursos-e-instalaciones-de-biomasa-en-andalucia">https://www.agenciaandaluzadelenergia.es/es/informacion-energetica-cartografia-energetica-de-andalucia/recursos-y-potencial-de-energias-renovables/mapa-de-recursos-e-instalaciones-de-biomasa-en-andalucia</a>	Andalusian Energy Agency (Andalusian Ministry of Industrial Policy and Energy)	The map of biomass resources and installations in Andalusia includes, on the one hand, a biomass potential in Andalusia that includes updated and extended information on the potential of this energy resource and, on the other hand, a map of biomass resources and installations in Andalusia that includes, on the other hand, a biomass potential in Andalusia that includes updated information on the potential of this energy resource, analysing sectors not previously studied and updating the biomass production ratios as a result of the application of the information obtained in the biomass field.	Both	In the tool there are functionalities common to both, such as information by municipality, where a single search shows all the information regarding potential and existing installations in a selected municipality; and functionalities specific to each application, such as the search for biomass in a given quantity and the search for installations in a given location.
12	2015	Ministry of Agriculture, Fisheries and Food	<b>PLAN DIRECTOR DEL OLIVAR ANDALUZ.</b>	<a href="https://www.juntadeandalucia.es/organismos/transparencia/planificacion-estadistica/planes/detalle/59239.html">https://www.juntadeandalucia.es/organismos/transparencia/planificacion-estadistica/planes/detalle/59239.html</a>	<a href="https://www.juntadeandalucia.es/translate/gooq/organismos/transparencia/planificacion-estadistica/planes/detalle/59239.html? x_tr_sl=en&amp; x_tr_tl=en&amp; x_tr_hl=en&amp; x_tr_pto=wapp">https://www.juntadeandalucia.es/translate/gooq/organismos/transparencia/planificacion-estadistica/planes/detalle/59239.html? x_tr_sl=en&amp; x_tr_tl=en&amp; x_tr_hl=en&amp; x_tr_pto=wapp</a>	Junta de Andalucía	The "Plan Director del Olivar Andaluz" was approved by Decree 103/2015 of March 10. It is provided for in the Andalusian Olive Grove Law and includes four major blocks: farms; industries and markets; training and R+D+I, and improvement of the management of olive grove territories. Its development focused on the regions where the production of olives or olive oil is fundamental for the economy, employment, the maintenance of the population and the conservation of the landscape and natural heritage.	Both	This plan established its horizon for 2020 and envisaged measures to ensure the competitiveness, sustainability and global leadership of Andalusia in this strategic sector, which provides 35% of agricultural employment and is the main economic activity in more than 350 Andalusian municipalities.
13	2020	Adnan Khair and Ghaida Abu-Rumman	<b>Sustainable Environmental Management and Valorization Options for Olive Mill Byproducts in the Middle East and North Africa (MENA) Region</b>	<a href="https://www.researchgate.net/publication/341944295_Sustainable_Environmental_Management_and_Vvalorization_Options_for_Olive_Mill_Byproducts_in_the_Middle_East_and_North_Africa_MENA_Region">https://www.researchgate.net/publication/341944295_Sustainable_Environmental_Management_and_Vvalorization_Options_for_Olive_Mill_Byproducts_in_the_Middle_East_and_North_Africa_MENA_Region</a>		Jordan University of Science and Technology	OMWW has a potential economic value that remains to be utilized such as: fertilizers, valuable antioxidant agents and fatty acids needed in human diet. Also, Olive pomace is a valuable renewable energy source and has become an inexpensive alternative for fossil fuels. Aiming at adding value to the olive production sectors and potential valorization options for by-products in the region of study, international practices applied in olive mills wastes management's and treatment methods used in major oil producing countries are presented.	Both	It is relevant because it describes the potential economic value of OMWW to be used as fertilizers, valuable antioxidant agents and aims to add value to olive production and options for by-product valorization (among others).



## 5. Biomass availability studies and nutrient recycling

Please add biomass availability and nutrient recycling studies that you find of interest to the deployment of your bio-based solutions.

### List of relevant studies

Solution 1:	Biofertilization through reutilization of wastewater from olive processing (alpechin).
Solution 2:	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.
Solution 3:	Both

Year	Author(s)	Title	Link	Translation link (English -> Spanish)	Summary of contents	Relevant to which solution?	Why is it relevant?	
1	2004	Alburquerque, J., González, J., García, D., & Cegarra, J.	<b>Agrochemical characterisation of "alperujo", a solid by-product of the two-phase centrifugation method for olive oil extraction.</b>	<a href="https://doi.org/10.1016/S0960-8524(03)00177-9">https://doi.org/10.1016/S0960-8524(03)00177-9</a>		This study allows a better understanding of the agrochemical characterization of "alperujo" (AL) and the determination of these properties as not compatible with agricultural requirements, so composting is considered the most suitable alternative for its disposal. In this sense, this study indicates the need to characterize AL prior to composting.	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.	Improved knowledge of the agrochemical characterization of "alperujo" (AL) and the characteristics of alperujo when used as compost.
2	2008	Mariann Garner-Wizard, Jennifer Minigh, Shari Henson, Heather S Olive, Brenda Milot, Marissa Oppe	<b>Olive Oil's Active Components and Benefits</b>	<a href="http://cms.herbalgram.org/herbclip/357/review010687-357.html?ts=1679475074&amp;signature=1a550421a33c914a6c16bd4054b4cd59&amp;ts=16800282378&amp;signature=732d566eaf042d19c21690622798c7ad">http://cms.herbalgram.org/herbclip/357/review010687-357.html?ts=1679475074&amp;signature=1a550421a33c914a6c16bd4054b4cd59&amp;ts=16800282378&amp;signature=732d566eaf042d19c21690622798c7ad</a>		Olive ( <i>Olea europaea</i> ) oil is a major component of the Mediterranean diet, which is associated with a reduced risk for chronic diseases including heart disease and cancer. Research suggests that the type of fat consumed "is more important than the total amount consumed." The relatively high levels of monounsaturated fatty acids (MUFA) and antioxidants found in olive oil, the main energy source in the Mediterranean diet, may be at least partially responsible for its protective effect against degenerative diseases.	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.	The evidence indicate that olive oil and its components contribute significantly to the health benefits of the Mediterranean diet, with more of an effect on prevention than treatment.
3	2018	Lucía Olmo-García, Nikolas Kessler, Heiko Neuweiger, Karin Wendt, José María Olmo-Peinado, Alberto Fernández-Gutiérrez, Carsten Baessmann and Alegría Carrasco-Pancorbo.	<b>Unravelling the Distribution of Secondary Metabolites in <i>Olea europaea</i> L.: Exhaustive Characterization of Eight Olive-Tree Derived Matrices by Complementary Platforms (LC-ESI/APCI-MS and GC-APCI-MS)</b>	<a href="https://www.mdpi.com/1420-3049/23/10/2419">https://www.mdpi.com/1420-3049/23/10/2419</a>	<a href="https://www.mdpi.com.translate.goog/1420-3049/23/10/2419? x_tr_sl=en &amp; x_tr_tl=es&amp; x_tr_hl=nl&amp; x_tr_pto=wapp">https://www.mdpi.com.translate.goog/1420-3049/23/10/2419? x_tr_sl=en &amp; x_tr_tl=es&amp; x_tr_hl=nl&amp; x_tr_pto=wapp</a>	In order to understand the distribution of the main secondary metabolites found in <i>Olea europaea</i> L., eight different samples (olive leaf, stem, seed, fruit skin and pulp, as well as virgin olive oil, olive oil obtained from stoned and dehydrated fruits and olive seed oil) coming from a Picudo cv. olive tree were analyzed.  The identified metabolites belonged to different chemical classes: triterpenic acids and dialcohols, tocopherols, sterols, free fatty acids, and several subtypes of phenolic compounds being the latter, more abundant in tissues, as well as the glycosylated flavonoids (predominantly distributed between leaves and stems).	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.	It allows to understand the amount and type of secondary metabolites present in the olive tree to be taken into account in the extraction of biochemical compounds.
4	2013	Sánchez-Quesada, C.; López-Biedma, A.; Warleta, F.; Campos, M.; Beltrán, G.; Gaforio, J.J.	<b>Bioactive properties of the main triterpenes found in olives, virgin olive oil, and leaves of <i>Olea europaea</i>.</b>	<a href="https://pubmed.ncbi.nlm.nih.gov/24279741/">https://pubmed.ncbi.nlm.nih.gov/24279741/</a>	<a href="https://pubmed.ncbi.nlm.nih.gov.translate.goog/24279741/">https://pubmed.ncbi.nlm.nih.gov.translate.goog/24279741/</a>	Oleanolic acid, maslinic acid, uvaol, and erythrodiol are the main triterpenes present in olives, olive tree leaves, and virgin olive oil. Their concentration in virgin olive oil depends on the quality of the olive oil and the variety of the olive tree.  So, in this work explores all of the bioactive properties so far described for the main triterpenes present in virgin olive oil.	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.	It provides information on the main triterpenes present in virgin olive oil that can be extracted as biochemical compounds present in the value chain.

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5	2013	S. Dermeche a , M. Nadour a , C. Larroche , F. Moulti-Mati a, P. Michaud	<b>Olive mill wastes: Biochemical characterizations and valorization strategies</b>	<a href="https://www.sciencedirect.com/science/article/abs/pii/S1359511313003917?via%3Dihub">https://www.sciencedirect.com/science/article/abs/pii/S1359511313003917?via%3Dihub</a>	<a href="https://www.sciencedirect.com/translate/gooq/science/article/abs/pii/S1359511313003917?via%3Dihub&amp;xtr=es&amp;xtr=nl&amp;xtr=pt=wapp">https://www.sciencedirect.com/translate/gooq/science/article/abs/pii/S1359511313003917?via%3Dihub&amp;xtr=es&amp;xtr=nl&amp;xtr=pt=wapp</a>	The extraction of olive oil is achieved through discontinuous or continuous processes. The two processes yield three fractions: a solid residue and two liquid phases (oil and olive mill wastewater). The characterization of these two by-products showed that they are mainly composed of phenolic compounds, carbohydrates, organic acids and mineral nutrients variably distributed depending on the process employed and the agronomic practices.	Biofertilization through reutilization of wastewater from olive processing (alpechin).	Olive oil extraction produces a solid residue and dark-colored wastewater containing nutrients that can be further bioprocessed in. In addition, valuable resources such as mineral nutrients, especially potassium, which could potentially be reused as a fertilizer.
6	2011	Beligh Mechri, Hechmi Cheheb, Olfa Boussadia, Fauzi Attia, Fethi Ben Mariem, Mohamed Braham, Mohamed Hammami	<b>Effects of agronomic application of olive mill wastewater in a field of olive trees on carbohydrate profiles, chlorophyll a fluorescence and mineral nutrient content</b>	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0098847210002601?via%3Dihub">https://www.sciencedirect.com/science/article/abs/pii/S0098847210002601?via%3Dihub</a>	<a href="https://www.sciencedirect.com/translate/gooq/science/article/abs/pii/S0098847210002601?via%3Dihub&amp;xtr=auto&amp;xtr=tl=en&amp;xtr=hl=en-US&amp;xtr=pt=wapp">https://www.sciencedirect.com/translate/gooq/science/article/abs/pii/S0098847210002601?via%3Dihub&amp;xtr=auto&amp;xtr=tl=en&amp;xtr=hl=en-US&amp;xtr=pt=wapp</a>	The organic fraction of the OMW (Olive mill wastewater) contains a complex consortium of phenolic substances, some nitrogenous compounds (especially amino acids), organic acids, sugars, tannins, pectins, carotenoids, polyphenols and almost all of the water soluble constituents of the olives. The inorganic fraction contains chloride, sulfate, and phosphoric salts of potassium as well as calcium, iron, magnesium, sodium, copper, and other trace elements in various chemical forms.  The inorganic constituents at the concentration levels found in OMW are not toxic; quite the reverse, they may potentially serve as good sources of plant nutrients and thereby rendering this effluent potentially suitable for recycling as a soil. In addition, in organic and sustainable farming, the nutritional value of OMW as well as its potential herbicidal activity, and ability to induce suppression against soil-borne plant pathogens are of extra value.	Biofertilization through reutilization of wastewater from olive processing (alpechin).	Since the inorganic components at the concentration levels found in the OMW are non-toxic; they may be potentially suitable for recycling and use in cosmetics and other by-products.
7	2023	Inmaculada Carmona, Itziar Aguirre, Daniel M. Griffith, Aranzazu García-Borrego	<b>Towards a circular economy in virgin olive oil production: Valorization of the olive mill waste (OMW) “alpeorujo” through polyphenol recovery with natural deep eutectic solvents (NADES) and vermicomposting</b>	<a href="https://www.sciencedirect.com/science/article/pii/S0048969723008148">https://www.sciencedirect.com/science/article/pii/S0048969723008148</a>	<a href="https://www.sciencedirect.com/translate/gooq/science/article/pii/S0048969723008148?xtr=auto&amp;xtr=tl=en&amp;xtr=hl=en-US&amp;xtr=pt=wapp">https://www.sciencedirect.com/translate/gooq/science/article/pii/S0048969723008148?xtr=auto&amp;xtr=tl=en&amp;xtr=hl=en-US&amp;xtr=pt=wapp</a>	The best substrate for vermicomposting was determined by the worm biomass, growth rate, carbon to nitrogen (C:N) ratio, and N and P content. AlpeoNADES and manure 3:1 produced the highest quality vermicompost in the shortest time, generating a product that complied with European standards for organic fertilizers. Hence, alpeoNADES was recycled to a low cost, organic balanced fertilizer in Stage 3, enabling the olive oil industry to transition to sustainable production through this integrated circular economy design.	Both	The recovery of bioactive phenolic compounds from the fresh OMW using natural deep eutectic solvents (NADESs), show how it is possible to generate a valuable phenolic extract and a new by-product, a dephenolized OMW named “alpeoNADES that can be used as well for other products.  In addition, it demonstrates citric acid and fructose (CF) is the most effective solvent to obtain phenolic extracts for nutraceutical and agronomical purposes.
8	2020	Alessandra Ricelli, Fabio Gionfra, Zulema Percario, Martina De Angelis, Ludovica Primitivo, Veronica Bonfantini, Roberto Antonioletti, Simonetta Maria Bullitta, Luciano Saso, Sandra Incerpi, and Jens Zacho Pedersen	<b>Antioxidant and Biological Activities of Hydroxytyrosol and Homovanillic Alcohol Obtained from Olive Mill Wastewaters of Extra-Virgin Olive Oil Production</b>	<a href="https://pubs.acs.org/doi/10.1021/acs.jafc.0c05230">https://pubs.acs.org/doi/10.1021/acs.jafc.0c05230</a>	<a href="https://pubs.acs.org/translate/gooq/doi/10.1021/acs.jafc.0c05230?xtr=auto&amp;xtr=tl=en&amp;xtr=hl=en-US&amp;xtr=pt=wapp">https://pubs.acs.org/translate/gooq/doi/10.1021/acs.jafc.0c05230?xtr=auto&amp;xtr=tl=en&amp;xtr=hl=en-US&amp;xtr=pt=wapp</a>	Among the variety of bioactive components found in olives, several phenolic compounds such as hydroxytyrosol (HT) 4-(2-hydroxyethyl)-1,2-benzenediol seem to have key roles. These phenols are powerful hydrogen-donating antioxidants and scavengers of reactive oxygen and nitrogen species.  In the course of this study, the synthesis of homovanillic alcohol (HA) and hydroxytyrosol (HT) from tyrosol (TY), a byproduct from the production of olive oil, has been examined. The effect of HA and HT on ROS production and on cell proliferation in THP-1 and L-6 cell lines was also evaluated.	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.	Extra-virgin olive oil (EVOO) contain substances such as hydroxytyrosol (HT) and its metabolite homovanillic alcohol (HA). HT has aroused much interest due to its antioxidant activity as a radical scavenger and therefore as principal component of several products.
9	2017	T. Chatzistathis, T. Koutsos	<b>Olive mill wastewater as a source of organic matter, water and nutrients for restoration of degraded soils and for crops managed with sustainable systems, Agricultural Water Management,</b>	<a href="https://www.sciencedirect.com/science/article/pii/S037837417301774">https://www.sciencedirect.com/science/article/pii/S037837417301774</a>	<a href="https://www.sciencedirect.com/translate/gooq/science/article/abs/pii/S037837417301774?xtr=auto&amp;xtr=tl=en-US&amp;xtr=pt=wapp">https://www.sciencedirect.com/translate/gooq/science/article/abs/pii/S037837417301774?xtr=auto&amp;xtr=tl=en-US&amp;xtr=pt=wapp</a>	Present and thoroughly discuss all the beneficial aspects of OMW application with regard to: i) the restoration of degraded croplands, ii) sustainable crop management, based on the most important and recently published papers. In addition, the environmental consequences of exaggerate and untreated OMW applications, together with some solutions (strategies) adopted for eliminating soil and groundwater contamination and phytotoxicity are also presented in this article.	Biofertilization through reutilization of wastewater from olive processing (alpechin).	OMW is a low-cost source of nutrients (especially N, P, K, Mg and Fe), water, and organic matter; thus, it can be successfully used for the restoration of degraded croplands, in hilly, eroded, poor in organic C, and/or semi-arid areas.

10	2012	Beatriz Gómez-Muñoz, David J. Hatch, Roland Bol and Roberto García-Ruiz	<b>The Compost of Olive Mill Pomace: From a Waste to a Resource - Environmental Benefits of Its Application in Olive Oil Groves</b>	<a href="https://www.intechopen.com/chapters/38104">https://www.intechopen.com/chapters/38104</a>	-	Composted olive mill pomace is a worthwhile strategy to reduce the environmental problems associated with the disposal of OLM, and increases the sustainability and ecological services of olive oil cultivation.	Biofertilization through reutilization of wastewater from olive processing (alpechin).	Environmental services linked to the recycling of olive mill pomace throughout composting are indicated.
11	2022	Narjes Malekjani & Seid Mahdi Jafari	<b>Valorization of olive processing by products via drying technologies: a case study on the recovery of bioactive phenolic compounds from olive leaves, pomace, and wastewater.</b>	<a href="https://www.tandfonline.com/doi/abs/10.1080/10408398.2022.2068123">https://www.tandfonline.com/doi/abs/10.1080/10408398.2022.2068123</a>	<a href="https://www.tandfonline.com.translate.goo/doi/abs/10.1080/10408398.2022.2068123?x_tr_sl=auto&amp;x_tr_tl=en&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp">https://www.tandfonline.com.translate.goo/doi/abs/10.1080/10408398.2022.2068123?x_tr_sl=auto&amp;x_tr_tl=en&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp</a>	The production of value-added ingredients from Olive by-products is not extensively exploited on the industrial scale. Drying is a critical pretreatment before extraction that can have a direct impact on the recovery and yield of the available bioactive compounds in olive by-products. In order to produce more stable and high quality phenolic products, encapsulation using spray and freeze drying is used.	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.	In this study, the effect of the drying process before and after the extraction of bioactive compounds from olive by-products as an important source of phenolic compounds is reviewed.
12	2020	Juan Carlos Hidalgo Moya Ana Leyva Bollero Javier Hidalgo Moya Daniel Pérez Mohedano Victorino Vega Macías	<b>La Fertilización Foliar en Olivar. Corrección de Carencias Nutricionales</b>	<a href="https://www.juntadeandalucia.es/agriculturaypesca/ifapa/servifapa/registro-6379c212-eb77-4251-9e9a-db6665f3b4ba">https://www.juntadeandalucia.es/agriculturaypesca/ifapa/servifapa/registro-6379c212-eb77-4251-9e9a-db6665f3b4ba</a>	<a href="https://www.juntadeandalucia.es.translate.goo/agriculturaypesca/ifapa/servifapa/registro-6379c212-eb77-4251-9e9a-db6665f3b4ba?x_tr_sl=auto&amp;x_tr_tl=en&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp">https://www.juntadeandalucia.es.translate.goo/agriculturaypesca/ifapa/servifapa/registro-6379c212-eb77-4251-9e9a-db6665f3b4ba?x_tr_sl=auto&amp;x_tr_tl=en&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp</a>	Fertilization is a cultivation practice widely used by olive growers, playing an important role in the productive, environmental and economic sustainability of the crop. Its main objective is to achieve plantations with high productive potential, both in quantity and quality. This document focuses on the application of fertilizers in olive groves by foliar route.	Both	This study provides knowledge about the nutritional and fertilization needs of the Andalusian olive grove.
13	2020	García Martín, Juan Francisco, Manuel Cuevas, Chao-Hui Feng, Paloma Álvarez Mateos, Miguel Torres García, and Sebastián Sánchez.	<b>Energetic Valorisation of Olive Biomass: Olive-Tree Pruning, Olive Stones and Pomaces</b>	<a href="https://www.mdpi.com/2227-9717/8/5/511">https://www.mdpi.com/2227-9717/8/5/511</a>	<a href="https://www.mdpi.com.translate.goo/2227-9717/8/5/511?x_tr_sl=auto&amp;x_tr_tl=en&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp">https://www.mdpi.com.translate.goo/2227-9717/8/5/511?x_tr_sl=auto&amp;x_tr_tl=en&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp</a>	The objective of this paper is to comprehensively review the latest advances focused on energy production from olive-pruning debris, olive stones and pomaces, including processes such as combustion, gasification and pyrolysis, and the production of biofuels such as bioethanol and biodiesel.	Both	This study provides a better understanding of the properties and recovery possibilities of pruning waste, olive pits and pomace.
14	2018	Berbel, J., Gutiérrez-Martín, C., & La Cal, J. A.	<b>Valorización de los subproductos de la cadena del aceite de oliva.</b>	<a href="https://dialnet.unirioja.es/servlet/articulo?codigo=6648781">https://dialnet.unirioja.es/servlet/articulo?codigo=6648781</a>	<a href="https://dialnet.unirioja.es.translate.goo/servlet/articulo?codigo=6648781&amp;x_tr_sl=es&amp;x_tr_tl=en&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp">https://dialnet.unirioja.es.translate.goo/servlet/articulo?codigo=6648781&amp;x_tr_sl=es&amp;x_tr_tl=en&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp</a>	This article describes the generation of residual biomass and by-products of the olive oil value chain in the European Union. The current use of this biomass, which is mainly valorized for electricity generation, is analyzed. New opportunities for the use of residual biomass are analyzed, such as the production of solid biofuels with high added value, the obtention of second-generation biofuels (bioethanol), functional livestock feed or the obtention of bioactive compounds, among others.	Extraction of biochemical compounds from olive processing activities for production of biofertilizers and cosmetics.	This study provides an overview of the current use of the biomass obtained in the olive oil value chain and the new possibilities for its use.
15	2023	Alaoui, I., El Ghadraoui, O., Tanji, K., Harrach, A., & Farah, A.	<b>The Olive Mill Pomace: A Sustainable Biofertilizer to Improve Soil Properties and Plant Nutrient Uptake</b>	<a href="https://doi.org/10.1007/s12649-023-02324-z">https://doi.org/10.1007/s12649-023-02324-z</a>	<a href="https://link.springer.com.translate.goo/article/10.1007/s12649-023-02324-z?error=cookies_not_supported&amp;code=73e4236c-a63f-42b0-c06ff4f8d318&amp;x_tr_sl=en&amp;x_tr_tl=en&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp">https://link.springer.com.translate.goo/article/10.1007/s12649-023-02324-z?error=cookies_not_supported&amp;code=73e4236c-a63f-42b0-c06ff4f8d318&amp;x_tr_sl=en&amp;x_tr_tl=en&amp;x_tr_hl=en-US&amp;x_tr_pto=wapp</a>	The objective of this study is to explore innovative recycling solutions for solid wastes obtained from olive oil. In particular, promising technologies for the production of high value-added products from olive oil by-products are presented, with special attention to technologies for the use of olive pomace as a soil-friendly biofertilizer. The application of how this organic matter can affect soil physicochemical properties, plant production, plant nutrient uptake and mineral bioavailability is also discussed.	Both	This study presents promising technologies for the production of high value-added products with olive oil by-products. It also proposes the application of olive oil as an improver of soil properties