

CBE JU AWP2024:

Topics' scope and
expected outcomes



Type of Action: IA-Flag	Topic Budget: 20 M€
end TRL: 8	EU contribution per project: 20 M€

HORIZON-JU-CBE-2024-IAFlag-01 Bio-based value chains for valorisation of sustainable oil crops

Scope: Demonstrate large scale cultivation of oil crops and enhanced ecosystem services at local level. **convert oils from the targeted crops**

The scope covers the industrial use of plant oil crops, including cascading use of their side-streams/residues. Algae is out of scope, as well as biofuel applications. Respecting the 'food first' principle.

Expected outcomes

- Establishment of oil crop production systems (including establishing synergies with) food value chains, meeting objectives of biodiversity protection and resilience.
- Oil yield, quality and purity meeting biorefinery processing requirements.
- Significantly improved sustainability, strategic autonomy, resilience and competitiveness of the European bio-based industry while reducing the dependence on imported feedstock.

The feedstock in scope can include established oil crops as well as promising ones (already proven at least at TRL 6). Proposals may also include a limited amount of activities at lower final TRL, e.g. small field trials, on crop breeding approaches

Other elements: **Multi-actor approach** and **SSbD assessment** mandatory. Link with the Mission 'A Soil Deal for Europe'

Type of Action: IA-Flag	Topic Budget: 20 M€
end TRL: 8	EU contribution per project: 20 M€

HORIZON-JU-CBE-2024-IAFlag-02 Bio-based dedicated platform chemicals via cost-effective, sustainable and resource-efficient conversion of biomass.

Scope: Demonstrate cost-effective, sustainable and resource-efficient large-scale production processes for obtaining **one or more bio-based dedicated platform chemicals** aspects are in scope. Validate (end TRL: 5 and above) the **further chemicals into final products**.

Dedicated chemicals are those not having an identical fossil-based counterpart available on the market

Expected outcomes

- Sustainable, large-scale production of bio-based platform chemicals with dedicated* chemical structures
- Significantly improved sustainability, strategic autonomy, resilience and competitiveness of the European chemical industry and with cascading impact in other downstream sectors.
- Reduce the fossil feedstock dependence of chemicals production and/or minimising biomass imports dependencies of the bio-based industries.

Other elements: Multi-actor approach and **SSbD assessment** mandatory.

Type of Action: IA-Flag	Topic Budget: 20 M€
end TRL: 8	EU contribution per project: 20 M€

HORIZON-JU-CBE-2024-IAFlag-03 Bio-based value chains for valorisation of sustainable natural fibre feedstock

Scope: Developing and deploying sustainable climate-positive **natural fibre feedstock** is essential for supporting numerous existing bio-based value chains as well as for potentially creating new ones. Sustainable agricultural and forestry practices can deliver feedstock meeting industry requirements (such as fibre yield, quality) while ensuring all aspects of sustainability. Both long and short fibre applications (**refined fibres**) are in scope, while synthetic bio-based fibres are excluded.

Expected outcomes

- Implementation of (environmentally and economically) sustainable bio-based fibre feedstock, enabling diversification of actors in the bio-based sectors via cooperation between primary producers and bio-based industries.
- Availability of bio-based products (based on fibres) meeting market requirements, including via application testing.
- Contribution to revitalization of European rural areas.

Other elements: **Multi-actor approach** and **SSbD assessment** mandatory. Link with the Missions 'A Soil Deal for Europe' and 'Restore our Oceans and Waters by 2030'

Fibre crops and wood-based fibres are both refined fibres in scope, while synthetic bio-based fibres are excluded. Proposals may also include activities (at lower final TRL) on crop or wood species breeding approaches, respectively.

Type of Action: IAs	Topic Budget: 15 M€
end TRL: 7-8	EU contribution per project: 7.5 M€

HORIZON-JU-CBE-2024-IA-01: Bio-based materials and products for biodegradable in-soil applications

Scope: Demonstrate and deploy innovative production processes for SSbD bio-based products for biodegradable -in- soil applications, addressing the problem of (micro)plastics release in soil and their further dispersion in runoff water. This topic focuses on **products used in soil** e.g. mulch films, tarpaulins, geonets, geotextiles, geomembranes, etc. **and plastics** a dispensers, clips, pots etc; **select one or more** based on the relevance of products in the actual n

This topic focuses on biodegradability in soil – however an assessment of biodegradation in runoff water is also required

Expected outcomes

- Availability of safe and sustainable by design bio-based solutions aiming at zero waste and zero pollution, with decreased environmental on soil, biodiversity and climate.
- Improved circularity and resource efficiency.
- Innovative manufacturing processes to enable the safe biodegradation of bio-based materials and products according with the environmental conditions and time frame for specific applications.

Other elements: **Multi-actor approach** and **SSbD assessment** mandatory. Link with the Missions ‘A Soil Deal for Europe’ and ‘Restore our Oceans and Waters by 2030’

Type of Action: **IAs**

Topic Budget: **15 M€**

end TRL: **6-7**

EU contribution per project: **7.5 M€**

HORIZON-JU-CBE-2024-IA-02: Sustainable micro-algae as feedstock for innovative, added-value applications

Scope: Demonstrate optimised production, harvesting, and product extraction from **micro-algae, cyanobacteria and/or other phototrophic bacteria**, including aspects related to automation and control when applicable, including a specific focus on downstream separation and purification of products depending on final application requirements. Focus on high-value intermediates in the medium price range, for which production is competitive enough to meet market demands.

The objective is broadening the range of viable products beyond the high-end products for niche markets whose high value presently justifies the use of high-cost technologies

Expected outcomes

- Implementation of (environmentally and economically) sustainable micro-algae-based biorefinery processes.
- Availability of a broader range of micro-algae-based products meeting market requirements.
- Decreased energy, water, nutrients and in general resource requirements
- Improved environmental impact

Other elements: **Multi-actor approach** and **SSbD assessment** mandatory. Link with the Mission 'Restore our Oceans and Waters by 2030'

Type of Action: **IAs**

Topic Budget: **15 M€**

end TRL: **6-7**

EU contribution per project: **7.5 M€**

HORIZON-JU-CBE-2024-IA-03: Enlarging the portfolio of commercially produced bio-based SSbD solvents

Scope: Demonstrate sustainable and efficient production process(es) for obtaining bio-based solvents which can be then applicable as **SSbD alternatives** in one or more of

- production processes and/or
- recycling, decontamination or pollution control processes;
- formulation of ingredients/additives.

Focus on safety and sustainability challenges of market-relevant solvents, including the ones under the SVHC and SoCs categories

Expected outcomes

- Availability of a broader range of bio-based safe and sustainable by design (SSbD) solvents meeting market and technical performance requirements
- Significantly improved sustainability, safety, strategic autonomy, resilience and competitiveness
- Reduce the fossil feedstock dependence of chemicals production and/or minimising biomass imports dependencies of the bio-based industries

Other elements: Multi-actor approach and **SSbD assessment** mandatory.

Type of Action: **IAs**

Topic Budget: **15 M€**

end TRL: **6-7**

EU contribution per project: **7.5 M€**

HORIZON-JU-CBE-2024-IA-04: Circular and SSbD bio-based construction & building materials with functional properties

Scope: Demonstrate bio-based products with tailored **construction and renovation of buildings**. Products to) acoustic and thermal insulation panels, façade structures, window frames. Assess compatibility with regulatory framework.

Expected outcomes

- Uptake of circular bio-based solutions in construction and renovation of buildings, with possible spillovers to other large volume markets (e.g, transport and furniture).
- Bio-based materials performance meeting market and regulatory requirements.
- Improved environmental and health & safety profile compared to current equivalent, conventional products.

Other elements: Multi-actor approach and **SSbD assessment** mandatory.

While the primary focus should be on construction and building products, proposals can also consider replication of the developed solutions in other large market sectors such as transport and furniture among others

Type of Action: IAs	Topic Budget: 15 M€
end TRL: 6-7	EU contribution per project: 7.5 M€

HORIZON-JU-CBE-2024-IA-05: Selective and sustainable (co)-production of lignin-derived aromatics

Scope: Demonstrate the efficient, cost-competitive and sustainable production of **aromatic bio-based chemicals from lignin**, including phenols, alkylphenols, BTX (B aromatics). Address the **upstream** processing of lignocellulosic biomass to lignin to obtain targeted aromatics, demonstrating high yield and selectivity for the targeted aromatics. Test and validate (end TRL: 5 and above) the bio-based aromatics for their **further conversion or integration** further down the value chain

Define reaction mechanisms and pathways in view of further scale-up

Expected outcomes

- Scaling-up the cascading use of lignocellulosic biomass with improved atom economy, upcycling lignin. Significantly contributing to divesting from fossil resources, also considering the aromatics platform.
- Improved sustainability, strategic autonomy, resilience and competitiveness of the European chemical industry while reducing the fossil feedstock dependence in other downstream sectors

Other elements: Multi-actor approach and **SSbD assessment** mandatory.

Type of Action: **IAs**

Topic Budget: **15 M€**

end TRL: **6-7**

EU contribution per project: **7.5 M€**

HORIZON-JU-CBE-2024-IA-06: Innovative bio-based adhesives and binders for circular products meeting market requirements

Scope: Demonstrate the cost-competitive and resource efficient production of SSbD bio-based **adhesives and/or binders**, as alternatives to conventional fossil-based chemicals posing environmental and health & safety concerns. Demonstrate that they meet target **performances**, such as shelf life and durability, load-temperature, mechanical strength etc.

Expected outcomes

- Diversification of the bio-based adhesives and binders product portfolio and increase of their range of application
- Product performance meeting market and regulatory requirements
- Improved sustainability and circularity compared to existing market counterparts.
- Improved health and safety profile compared to existing market products.

Other elements: Multi-actor approach and **SSbD assessment** mandatory.

Besides the adhesives and binders themselves, consider their application to the final product(s), in particular concerning design for circularity

Type of Action: **IAs**

Topic Budget: **15 M€**

end TRL: **6-7**

EU contribution per project: **7.5 M€**

HORIZON-JU-CBE-2024-IA-07: Innovative conversion of biogenic gaseous carbon into bio-based chemicals, ingredients, materials

Scope: Demonstrate the efficient **capture and further conversion** of biogenic gaseous into ingredients, chemicals and polymers and/or materials within the scope of the CBE. Different conversion routes are in scope.

Address: i) flexible and economically viable systems for capture and/or purification of the gaseous stream ii) efficient recovery and purification of obtained ingredients/chemicals
requirements for targeted applications

CCU from fossil sources or the atmosphere is out of scope

Expected outcomes

- Industrial symbiosis in the bio-based sector to reduce GHGs emissions.
- Improved environmental performances and resource efficiency of bio-based processes.
- Improved and upscaled CCU technologies in the bio-based systems

Other elements: Multi-actor approach and **SSbD assessment** mandatory.

Type of Action: RIA	Topic Budget: 7 M€
end TRL: 5	EU contribution per project: 3.5 M€

HORIZON-JU-CBE-2024-RIA-01 Valorisation of polluted/contaminated wood from industrial and post-consumer waste streams

Scope : -Develop innovative, flexible, sustainable and efficient technologies for **separating wood content from impurities/pollutants/contaminants** & describe the latter will be safely and sustainably isolated and treated. -Develop routes to **valorise decontaminated wood waste** into bio-based intermediates/chemicals/materials/products. -Target **at least 2 applications/sectors**, considering economic viability and environmental sustainability. -**Assess environmental impact and circularity** of the developed treatment of the selected wood waste streams. ~~Consider the safety of both end-users and operators.~~ • **Analyse the regulatory framework** related to wood waste at EU level and **provide recommendations** to address bottlenecks. **Side-streams of the forestry sector and pulp& paper industries: not in scope.**

Expected outcomes

- New systems combining sorting, cleaning and valorisation of post-consumer and industrial wood waste into eco-designed, sustainable bio-based products.
- Cross-sectoral and multidisciplinary approach fostering the development of innovative circular business models.
- Decreased wood waste treated with unsustainable EoL practices and the associated environmental impacts.

Other elements:

- *When applicable*, assess & develop treatment and valorisation processes for the isolated contaminants.
- **Multi-actor approach** and integrating assessment based on the **SSbD framework** are mandatory.
- In addition to EU funded projects under H2020, HEU Cluster 6, BBI/CBE JU, also consider liaising with any relevant Processes4Planet projects and the NEB initiative.

Type of Action: RIA	Topic Budget: 7 M€
end TRL: 4-5	EU contribution per project: 3.5 M€

HORIZON-JU-CBE-2024-RIA-02 Biotech routes to obtain bio-based chemicals/materials replacing animal-derived ones

Scope: -Develop **biotech routes** for **sustainable bio-based alternatives** to animal-derived products. -**Test the biotech routes and subsequent downstream processes** up to pilot scale. -**Characterise the properties** of the resulting bio-based material(s)/chemical(s) and address **validation into final product(s)**. -Assess against regulations, including **health& safety aspects**, when considering consumer applications. -Perform **socio-economic impact assessment**, identifying challenges and opportunities across new and existing value chains. -**Involve end-users** early on to assess market acceptance. **Involve consumers** in the testing and validation phase.

Expected outcomes

- Novel, scalable and sustainable biotech production routes for bio-based, non-animal-derived chemicals and/or materials.
- Performance of bio-based chemicals and/or materials meeting end users' requirements for final products.
- Availability of SSbD bio-based products.
- Positive socio-economic impacts along the value chain.
- Social acceptance of circular bio-based solutions and products.

Any non animal-derived biomass, within the scope of CBE JU, is considered in scope for this topic.

Other elements:

- Focus is on bio-based materials and/or chemicals, yet co-production of other bio-based products (e.g. food/feed ingredients) is in scope, fulfilling the cascading use of biomass.
- **Multi-actor approach** and integrating assessment based on the **SSbD framework** are mandatory.

Type of Action: RIA	Topic Budget: 10 M€
end TRL: 4-5	EU contribution per project: 5 M€

HORIZON-JU-CBE-2024-RIA-03 Sustainable, bio-based alternatives for crop protection

Scope: -Develop and test innovative processes for obtaining safe and sustainable bio-based alternatives for crop protection. -Assess the potential risks and benefits of the chosen alternative(s), in view of safety and sustainability, and related to their manufacturing and placement on the market. *Where applicable, a comparison with the fossil-based state-of-the-art counterparts should be provided.* - Develop and test the effectiveness of alternatives, for selected crops, while covering a variety of climatic and soil conditions. -Address innovative solutions for product delivery on field, including precision farming approaches (through enabling digital technologies and/or formulation and optimisation aspects to ensure controlled release). -Implement a participatory approach, fostering the cooperation among farmers and bio-based industries, including exchange of knowledge and best practices, capacity building, training and education activities, thus enabling the adoption of alternative solutions.

Expected outcomes

- Increased availability of widely accessible, cost-efficient alternatives for improved environmental performance (reduced effects on non-target organisms)
- Low risk plant protection solutions to sustain crop productivity and food security in agriculture and/or forestry.
- Minimised pesticides impact on human and animal health, ecosystems, and the environment

Development of fertilisers (incl. biostimulants) is not in scope but proposals can explore synergistic strategies employing crop protection products and fertilisers.

Other elements:

- Consider liaising with the Mission 'A Soil Deal for Europe', in particular with activities under the objectives 'reduce soil pollution and enhance restoration' and 'improve soil structure to enhance soil biodiversity'.
- **Multi-actor approach** and integrating assessment based on the **SSbD framework** are mandatory.

Type of Action: RIA	Topic Budget: 7 M€
end TRL: 4-5	EU contribution per project: 3.5 M€

HORIZON-JU-CBE-2024-RIA-04 SSbD bio-based coating materials for applications under demanding and/or extreme conditions

Scope: -Develop innovative and efficient processes to obtain **SSbD bio-based alternative(s)** to (a set of) conventional **coating(s)** for **applications under demanding and/or extreme conditions** (e.g. high durability; resistance to fire, extreme temperatures, chemical agents, weather, fouling, corrosion) - **Assess** the **functional properties** of the developed coatings against application-driven parameters and **involve end-users in the testing and validation**. - **Address** the **EoL of the targeted final product(s)**, ensuring that the bio-based coating is not hindering the **circularity** of the final product(s). -Perform a **preliminary techno-economic feasibility analysis**, including market considerations.

Expected outcomes

- Diversified portfolio of bio-based coatings with high technical performances.
- Increased range of applications of bio-based coatings into products used under demanding and/or extreme conditions.
- Improved sustainability and circularity, compared to existing (fossil-based) counterparts.
- Improved health and safety profile, compared to existing (fossil-based) counterparts.

Other elements:

- One or more relevant end-use sectors could be targeted, without limitation.
- Integrating assessment based on the **SSbD framework** are mandatory.

Type of Action: RIA	Topic Budget: 7 M€
end TRL: 4-5	EU contribution per project: 3.5 M€

HORIZON-JU-CBE-2024-RIA-05 Innovative bio-based food/feed ingredients

Scope: -Develop innovative food and/or feed ingredients from sustainably sourced bio-based feedstock. Innovation can be related to i) **breakthrough processes** to obtain known food/feed ingredients, **and/or** ii) **novel food/feed ingredients**. -Besides **technical properties** (organoleptic, nutritional, prevention of intolerances/allergies), also consider **affordability**. -Pay particular attention to **environmental, social and economic sustainability** of the chosen production pathway. -Also consider the part of **downstream processing** to meet targeted quality, but also being aligned with safety and regulatory requirements. - **For circular solutions**, (e.g. residual biomass valorisation), adopt **monitoring solutions** to ensure that pathogens or contaminants are not injected back in the loop. -**Test the properties and safety** according to established testing procedures, and if applicable, their impact on product formulations. -**Address regulatory aspects relevant to the targeted end market(s)**, ensuring compatibility in view of potential future scale-up. -**Involve end-users** early on to assess market acceptance. When addressing consumer perception, consider the role of their perception and future chances of market uptake.

Expected outcomes

- Increased availability of affordable bio-based functional food/feed ingredients
- Increased safety and sustainability of food and feed value chains
- Reduction of use of food and feed ingredients from unsustainable sources
- New and better organoleptic & nutritional properties for health

Other elements:

- Production of bulk proteins, fibres and carbohydrates as the main component is not in scope; however the development of complex food/feed formulations with innovative functional ingredients working in synergy with them is in scope.
- **Multi-actor approach** is mandatory.

(!) Ingredients in scope: bioactive compounds, antioxidants, prebiotics, postbiotics, vitamins, peptides, oligosaccharides, fats, emulsifiers, <taste, texture, palatability and digestibility> enhancers, colourants, functional/'precision proteins' (i.e. proteins obtained, for example but not only, from precision fermentation process), among others.

Type of Action: CSA	Topic Budget: 3 M€
	EU contribution per project: 3 M€

HORIZON-JU-CBE-2024-CSA-02 Mobilize inclusive participation in bio-based systems and supporting the CBE JU widening strategy and its action plan

Scope: -Foster stakeholder engagement and collaboration, **Widening strategy**. Development of **joint projects** could be pr
Develop capacity building and raise awareness, encompassing
focusing on attracting newcomers and industrial representati
creation/participatory/trust building approaches, including in lo
and regional programmes in bioeconomy; iii) **recommendations** a
sector and for an increased engagement of all stakeholders, includ
Promote synergies: i) Analyse establishing **collaborations with**
levels with a particular focus on ESIFs, the implementation of R
ii) **Synergies with relevant EC funded projects**, considering the inventory of

Expected outcomes

- Increased innovation capacity of bio-based stakeholders in countries and regions with less mature bio-based ecosystems.
- Greater participation of less represented countries and regions in the CBE JU widening strategy, including the involvement of newcomers from industry, market operators, civil society and public authorities.
- Identified and improved connections among actors within local innovation ecosystems and across the EU.
- Full implementation of the CBE JU widening strategy at national and regional level.
- Synergies with other funding programmes at EU, national or regional level.

Other elements: Multi-actor approach is mandatory.

>Participation of stakeholders from other countries and regions is encouraged, if aimed at the exchange of best practices, capacity building and mutual learning.

>Synergies with relevant regional networks such as the BIOEAST Initiative are encouraged.

Proposals may involve financial support to third parties in the form of grants. The maximum amount to be granted to each third party is EUR 60,000. A maximum EUR 300,000 of the EU funding can be allocated to this purpose overall.

Type of Action: CSA	Topic Budget: 3 M€
	EU contribution per project: 3 M€

HORIZON-JU-CBE-2024-CSA-03 Supporting the CBE JU Deployment Group on Primary Producers

Scope: -Put in place working modalities and tools to effectively maintain the Deployment Group (DEG) for at least 3 years. - Support the DEG in developing and updating an action plan, while considering specificities of the identified primary sectors, and provide the means and mechanisms to implement the action plan. -Facilitate the organisation of regular meetings, assisting the dialogue among stakeholders and sectors and prepare reports and conclusions. -Organise ad-hoc technical working groups to discuss specific topics, as needed to achieve tangible results. -Assist in preparation of outputs, such as policy reports, analyses, or recommendations for the CBE JU GB, but also if needed, translated into other languages. -Identify and set-up efficient mechanisms to follow-up on challenges based solutions and innovations. - Develop collaboration with industry, involving Bio-based Industries Consortium. -Perform maximising its impact, including dissemination & communication cooperation with the rest of stakeholders across the value chain proposing and implementing actions to ensure synergies. -Identify past and ongoing R&I projects is needed. -Prepare a final report

Proposals may involve financial support to third parties in the form of grants. The maximum amount to be granted to each third party is EUR 60,000. A maximum EUR 300,000 of the EU funding can be allocated to this purpose overall.

Expected outcomes

- Support the CBE JU Deployment Group of primary producers to meet objectives and carry out proposed tasks.
- Enhanced impact by means of implementing high-quality actions and delivering outstanding outcomes.
- Efficient, active, engaged, and well-coordinated DEG, maintained
- Improved organisation, communication and dissemination of DE
- Enhanced cooperation with existing initiatives/networks/projects

Collaboration with the projects under HORIZON-JU-CBE-2024 CSA-01 and HORIZON-JU-CBE-2024 CSA-02 is strongly encouraged.

Other elements:

- The DEG will be composed by stakeholders representing the primary sector, including the agricultural; forestry; and fisheries & aquaculture primary sectors from different regions and pedo-climatic zones in Europe.



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