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POSITION

# INTEGRATED BIOREFINERIES: A STRATEGIC FOUNDATION FOR EUROPE'S BIOMANUFACTURING FUTURE

RECOGNISING EUROPE'S **EXISTING INDUSTRIAL STRENGTHS**  
TO ACCELERATE COMPETITIVENESS, CIRCULARITY AND  
RENEWABLE CARBON SUBSTITUTION.

## EXECUTIVE BRIEF

- » Starch biorefineries are established industrial biomanufacturing facilities that convert EU-grown agricultural raw materials into food, feed, fermentation feedstocks and bio-based products, supplying essential inputs to a wide range of downstream industries while supporting both industrial competitiveness and food security.
- » The priority for Biotech Act II should be competitiveness, deployment and scale-up. Lead markets, linked with bio-based content requirements and public procurement can provide the demand certainty needed to accelerate investment and fossil-carbon substitution.
- » Sustainability frameworks should support, not constrain, integrated biorefineries. Future bio-based content and renewable carbon policies should build on harmonised EU sustainability criteria, certification and traceability systems while recognising co-products, biogenic carbon and efficient biomass valorisation.

## EUROPE ALREADY HAS INDUSTRIAL BIOMANUFACTURING AT SCALE

Europe already possesses commercial-scale biomanufacturing infrastructure. Starch biorefineries are among the most mature examples, converting EU-grown raw materials – primarily wheat, maize, and starch potatoes – into a variety of food and feed ingredients, fermentation feedstocks, bio-based materials, chemicals and other industrial products. They link agriculture to key downstream sectors—including food, feed, biotechnology, pharmaceuticals, cosmetics, paper and packaging—by supplying renewable carbon, fermentation feedstocks and other essential inputs used throughout the bioeconomy. They are therefore a key component of Europe’s transition from virgin fossil carbon towards renewable and circular carbon sources.

Biotech Act II should therefore focus not only on innovation, but also on the competitiveness, full utilisation and expansion of existing European biomanufacturing capacity. Starch biorefineries supply multiple value chains simultaneously rather than serving a single end market. By producing food ingredients, feed proteins, fermentation substrates and industrial raw materials from the same biomass resource, they strengthen food security, agricultural resilience, farmer income opportunities, industrial competitiveness, circularity and fossil-carbon substitution simultaneously.

### KEY ASK

**Recognise integrated biorefineries as strategic industrial infrastructure for biomanufacturing and ensure their eligibility for future industrial deployment, financing and lead-market instruments.**

## AN UNPRECEDENTED INDUSTRIAL CONTEXT

The main challenge facing many bio-based industries is no longer technological readiness but market uptake. Public procurement, targeted bio-based content requirements in identified lead markets, and clear standards and labelling frameworks can provide the demand certainty needed to unlock investment and accelerate fossil-carbon substitution.

Agricultural biomass, including starch-rich feedstocks, remains essential to a competitive European biomanufacturing sector. Recent evidence has confirmed that diversifying agricultural raw materials across food, feed and industrial applications can support food security and climate objectives while creating additional value for farmers and rural economies. Expanding biomanufacturing in Europe can strengthen demand for agricultural raw materials and create new market opportunities for European farmers. First-generation agricultural feedstocks should therefore remain fully eligible within future bioeconomy and biomanufacturing policies.

### KEY ASK

**Establish a lead-market framework combining public procurement, targeted bio-based content requirements and harmonised standards in priority applications where bio-based solutions can substitute fossil carbon at scale.**

## ENSURE SUSTAINABILITY FRAMEWORKS SUPPORT INTEGRATED BIOREFINERIES

As the EU develops bio-based content targets and renewable carbon frameworks, sustainability governance will become increasingly important. Future approaches should build on existing EU sustainability, traceability and certification systems, including approaches inspired by the Renewable Energy Directive where appropriate.

At the same time, sustainability criteria must reflect the realities of integrated biorefineries. A starch biorefinery simultaneously produces food, feed and industrial products while valorising co-products and side streams. Sustainability methodologies should therefore recognise co-products, food and feed integration, biogenic carbon and efficient biomass use. Sustainability frameworks should incentivise full biomass valorisation and renewable carbon substitution rather than assessing products in isolation.

The design of sustainability methodologies may ultimately be as important as the targets themselves in determining whether investment takes place in Europe.

### KEY ASK

**Build future bio-based content and renewable carbon frameworks on harmonised EU sustainability criteria, certification systems and, if relevant, mass-balance approaches, while ensuring lifecycle methodologies properly account for co-products, food/feed integration, biogenic carbon and efficient biomass valorisation.**

## IMPROVE REGULATORY COHERENCE AND ACCELERATE INNOVATION

Regulatory fragmentation remains a significant barrier to industrial biotechnology. Biotech Act II should improve coherence across food, feed, chemicals, sustainability and industrial policy through faster and more predictable authorisation procedures, better coordination between authorities and reduced administrative requirements.

Novel Foods and biotechnology-enabled ingredients can contribute to more resilient and sustainable food systems, but current procedures are often too slow relative to innovation cycles. Regulatory sandboxes and more efficient pathways for innovative biotechnology applications could help accelerate scale-up while maintaining high standards of safety and consumer protection.

### KEY ASK

**Create a more coherent EU framework for industrial biotechnology through faster authorisation procedures with clearly defined and predictable timelines, better coordination across regulatory regimes and the use of regulatory sandboxes for innovative biotechnology applications, including Novel Foods.**

## CONCLUSION

Europe already possesses integrated biorefineries capable of delivering food security, industrial competitiveness, circularity and fossil-carbon substitution simultaneously. The priority for Biotech Act II should therefore be further deployment rather than proof of concept.

By combining lead markets coupled with targets, regulatory coherence, proportionate sustainability governance and support for integrated biorefineries, the Act can help unlock existing European industrial capacity, strengthen strategic autonomy and accelerate the transition to a competitive circular bioeconomy.