

Project title: INGRAIN - Best in the West: Innovation Alliance
Agro-Food-Textile - from Waste Material to Valueable Sus-
tances to Nutrients

Partner: Wirtschaftsförderungsgesellschaft für den Kreis
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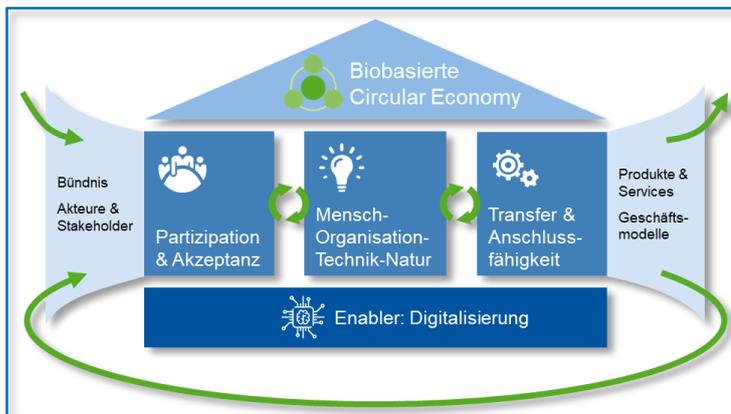
Mission Statement

The main goal of INGRAIN is the implementation of a biobased circular economy for the sustainable generation of valuable products from residual waste streams. The circular economy covers the whole value chain from raw material to products including logistics, buyers, and upcycling within a defined region. The agricultural, textile, and food sectors are of particular interest as these sectors include the largest buyers of bio-based products as well as the largest producers of residual waste streams for potential upcycling processes. The project area of INGRAIN is located in the coal exit region of the Rhinish mining district (NRW).

Currently, residual waste streams from the agricultural and food sectors are mainly used as animal feed or burned for energy due to a lack of options. As a principle, residual materials are only to be used for power generation purposes if the current accessible potential has been exhausted. This implies a large untapped potential for value-added products and opens up various possibilities for disruptive and cross-section innovations. The contents of residual waste streams can be processed into higher-quality products and are well within reach of realization. However, only through close cooperation between industry and science can this goal be achieved.

In conventional conversion processes, a loss of valuable precursors for plastics, platform chemicals, and nutrients are hardly avoidable. By tapping the potential employing chemical, mechanical or biotechnological processes, various products such as functional food, organic fertilizers, textiles, pharmaceuticals, standard chemicals, and high-performance materials can be accessed. Through diverse solutions, the agricultural, textile, and food industries exhibit to be the ideal environment for a bio-based circular economy within an otherwise structurally weak region.

Approach



To achieve a circular economy, INGRAIN uses the basis of Cradle-to-Cradle, in which synergetic biological and technical cycles are combined. The platform for this project will be provided by the innovation alliance where digitization acts as the enabler. The guiding principle can be described through the four pillars: Man, Organisation, Technology, and Nature. The existing partners act proactively in the conception of a biobased circular economy. This can be achieved through close cooperation of science and industry at various stages of the value-chain

With a strong base of alliance partners, the synergetic potential within the alliance increase accordingly. Critical points such as potential products, services, logistics, and applications can be developed in a targeted manner and generate a more competitive and viable Business-Case. The Business-Case is based on a transparent exchange of intelligence by the alliance partners. The flexibility of an innovation alliance allows INGRAIN to design modular solutions with multiple partners for a larger goal.

Through the regional implementation of solutions, a change from fossil fuels to renewable resources can be initiated. Aiming for a more sustainable future, INGRAIN creates new possibilities for infrastructure and generates needed jobs in the same process. With a positive review of the concept, implementation will begin on the 09/2021 with a project runtime of 6 years.

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