

## Partners



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# BestCrop

Boosting photosynthesiS  
To deliver novel CROPS for  
the circular bioeconomy

For Industries

[www.bestcrop.eu](http://www.bestcrop.eu)

## Introduction

**BEST-CROP** is an alliance of European plant breeding companies, straw processing companies and academic plant scientists aiming to utilise advances in our understanding of photosynthesis to improve barley yield and to exploit variability in barley straw quality and composition.

BEST-CROP is developing **Next Generation barley Plants (NGPs)** to replace current varieties with fully renewable alternatives.

## Challenges

Awareness of the **environmental footprint** of everyday products is growing among consumers, who are actively seeking planet-friendly alternatives.

For example, the cultivation of crops for **animal feed** presently adds 6% to the overall greenhouse gas emissions of the food industry<sup>1</sup>.

Similarly, the production of **chemical lubricants** carries a substantial environmental toll, which could be lessened by replacing harmful lubricants with biodegradable substitutes.

Additionally, the **building and construction sector** is a significant contributor, responsible for approximately 37% of global operational energy and process-related CO<sub>2</sub> emissions<sup>2</sup>.

<sup>1</sup> Hannah Ritchie, Pablo Rosado and Max Roser (2022) - "Environmental Impacts of Food Production" Published online at OurWorldinData.org. Retrieved from: <https://ourworldindata.org/environmental-impacts-of-food> [Online Resource]

<sup>2</sup> United Nations Environment Programme (2020). Global Status Report for Buildings and Construction

## Objectives

BEST-CROP aims to revolutionize the transformation of barley straw into premium bio-based products for various sectors:

- **Feed and Green Chemistry:** Transform protein-rich straw into high-quality protein for animal feed and fatty acids for eco-friendly lubricants.
- **Building and Composites:** Use straw optimized for cellulose/lignin content to create construction panels with enhanced thermal insulation and fire resistance and manufacture light and mechanically robust straw-reinforced polymer composites.

Simultaneously, we'll implement **pilot-scale demonstrators (TRL 5)** to validate the efficiency of NGPs, confirm the viability of barley straw-based products, and assess their associated value chains.

