

GeneBEcon

Capturing the potential of Gene editing for a sustainable BioEconomy



»»» FOREWORD

Welcome to GeneBEcon's first newsletter. We are a large team of dedicated and progressive experts working with the financial support of the European Commission to find climate-friendly and less polluting solutions in agriculture and industrial processing. Have you ever wondered what the latest methods in breeding, such as new genomic techniques, can be used for? Then check out what we are doing in potato and in microalgae. Are you interested in the societal implications of this technology? Dig into the details of our work on regulatory options, risk assessment and economic impact. Do you want to know which stakeholders we invite to broaden the perspectives? Read about our symposia and workshops. And if you have any other questions or want to know more about our project, please visit our website [here](#).

Dennis Eriksson, Coordinator

WHAT WILL YOU READ HERE:

- »» How we address Potato and Microalgae
- »» GeneBEcon highlights:
 - Kick-Off Meeting
 - The RRI Workshop
 - Science-Policy Symposium
 - Midterm Symposium
 - Green Genius Event
- »» GeneBEcon approaches to get the benefits from NGTs

[More info on our website](#) ««

WHAT WE RESEARCH

GENEBECON RESEARCH USING NGTS FOR POTATO AND MICROALGAE

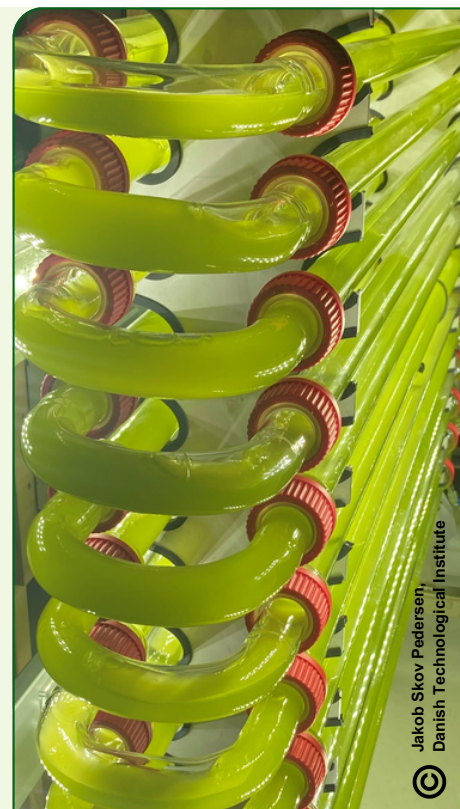
Through the innovative application of base editing, GeneBEcon aims to achieve precise genetic modifications with minimal unintended alterations. The project will pioneer the development of molecular analytical tools to assess and mitigate risks associated with gene-edited crops, contributing to regulatory advancements. By involving relevant business partners and conducting extensive field testing, GeneBEcon seeks to bridge the gap between research and practical implementation, ultimately facilitating sustainable agriculture with reduced pesticide use and streamlined industrial processing. Through the application of this technology in potato and microalgae, GeneBEcon intends to promote energy-efficient, low-input, and improved agricultural production and industrial processing for a sustainable bioeconomy.

POTATO <<<

Potatoes play a role in the GeneBEcon project due to their significance in global agriculture and the potential for genetic advancements to address prevalent issues. In this project, advanced CRISPR/Cas-based methods are optimized to overcome limitations and enhance desirable traits in potatoes. Specifically, the focus lies on combating the potyvirus PVY, a major global threat to potato crops, by incorporating natural resistance identified through extensive research. Additionally, gene editing techniques is being employed to refine starch quality in potatoes, eliminating the need for chemical modifications and thus improving industrial applications.

>>> MICROALGAE

Microalgae hold immense potential for various industries, yet their genetic engineering remains underdeveloped. In GeneBEcon, microalgae serve as a focal point for pioneering advancements in metabolic engineering via next-generation technologies. Despite existing challenges such as low reproducibility and efficiency, this project aims to validate gene editing techniques in microalgae, paving the way for scalable applications. By enhancing the production of valuable compounds like MAAs, microalgae can become integral to sectors like cosmetics and industry, fostering economic growth within the blue economy framework. Moreover, the utilization of microalgae residual biomass as poultry feed presents a sustainable solution to protein sourcing, potentially reducing land use and dependency on traditional feed sources like soybeans. Through meticulous nutritional analysis and poultry trials, GeneBEcon aims to demonstrate the viability and benefits of integrating microalgae into circular bioeconomies, promoting environmental sustainability and resource efficiency.



HOW TO GET BENEFITS

GENEBECON CONSORTIUM PARTNERS HAVE COME UP WITH SEVERAL APPROACHES TO GET BENEFITS FROM NGTS

REGULATORY OPTIONS

- **Scientific Contribution:** GeneBEcon emphasizes the role of scientific knowledge as pivotal in shaping discussions surrounding regulatory implementation pre-adoption by the Council of the EU and the European Parliament. This data-driven approach ensures informed decision-making and robust regulatory frameworks.
- **Ensuring Safety:** GeneBEcon evaluates biosafety data requirements in all regulatory options, considering the similarities of NGT plants with conventional varieties. This commitment underscores the importance of maintaining high safety standards throughout the regulatory process.
- **Overcoming Bottlenecks:** GeneBEcon acknowledges the role of regulatory demands and legislative complexities for applicants. Through a proactive approach, GeneBEcon seeks to navigate these challenges effectively, facilitating the advancement of NGT research and development while ensuring compliance with regulatory requirements.

RRI APPROACH

GeneBecon's commitment to Responsible Research and Innovation (RRI) underscores ethical priorities, fostering inclusive dialogue, and building trust within its research initiatives.

- **Ethical Priorities:** GeneBEcon places ethical considerations at the forefront of its research, ensuring alignment with societal needs and values.
- **Inclusive Dialogue:** GeneBEcon fosters inclusive dialogue and transparency by engaging stakeholders from diverse backgrounds. This approach democratizes science and amplifies voices often unheard in research processes.
- **Building Trust:** GeneBEcon incorporates RRI practices to build trust and collaboration among stakeholders. By doing so, it enhances the societal relevance and sustainability of its research endeavors.

COLLABORATION WITH EU PROJECTS

GeneBEcon is collaborating with other EU projects to expand its communication to the world

01

BRIGHTSPACE

The EU's BrightSpace project analyzes agriculture's impact on climate, economy, and biodiversity. It aims to develop tools to assess innovations within a Safe and Just Operating Space framework. Read more [here](#).



BRIGHT
SPACE

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RATION

RATION, a Horizon Europe project, tackles EU regulatory hurdles limiting low-risk pesticides' reach. It aims to devise a tailored risk assessment framework for diverse pesticide types over four years. Read more [here](#).



RATION

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KICK OFF MEETING OCTOBER 2022

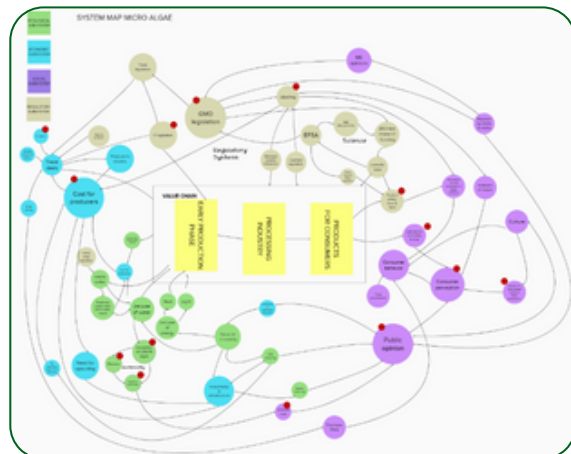
The official kick-off meeting of GeneBEcon project was a 2-day event held in Malmö (Sweden) on September 19th and 20th, 2022 to lay the foundations for the GeneBEcon project and officially get started on the proceedings for the implementation of the activities planned. Representatives from all organisations involved in the consortium, as well as from the European Commission participated in the meeting. Read the press release [here](#).



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TECHNICAL REPORT FEBRUARY 2023

The first GeneBEcon technical report, “Regulatory Options for New Genomic Techniques in the European Union”. In this document we have provided six options considering the potential regulatory design of such changes. Get to know more [here](#).



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SYSTEMS MAPPING APPROACH MARCH 2023

The first GeneBEcon project’s workshop, the Systems Approach Workshop, took place on the 1st of March, 2023 in Brussels, Belgium, to build a systems map for the two production systems (potato and microalgae), as well as to assess the benefits and risks of the (NGT) interventions using the systems map under different governance options. Read more [here](#).

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EU COMMISSION PROPOSAL ON NGT JULY 2023

The consortium of GeneBEcon welcomes the publication of the EC’s legislative proposal to provide an adapted and proportionate assessment of NGT plants, acknowledging the diversity of possible outcomes of using NGTs and considering both potential risks and benefits of the final plant product. Read more [here](#).

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PRE-CONGRESS WORKSHOP AUGUST 2023

The Inter-model Cooperation between the Brightspace, GeneBEcon, and RATION Projects conducted a Pre-Congress Workshop on 29th August 2023 in the XVII EAAE Congress, Couvent des Jacobins in Rennes, France. Read more [here](#).



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2ND CONSORTIUM MEETING OCTOBER 2023

GeneBEcon held the 2nd Consortium Meeting in Limassol, Cyprus, for 2 days on October 4th and 5th, 2023. During this Consortium Meeting, 18 partners from 11 European countries discussed the New Genomic Techniques (NGT) proposal of the European Commission, which included NGT verification, authorisation procedures and guiding the partners on the transition from expected to key exploitable results. Read more about it [here](#).



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THE SCIENCE-POLICY SYMPOSIUM OCTOBER 2023

On October 6th, the Science-Policy Symposium was held with the title of “What do NGTs mean for agriculture, aquaculture, food security and the bioeconomy“, it was organised by GeneBEcon and the Cyprus University of Technology under the auspices of the Cyprus’ Ministry of Agriculture, Rural Development and Environment. Read more [here](#).

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1ST RESPONSIBLE RESEARCH AND INNOVATION WORKSHOP NOVEMBER 2023

The 1st RRI Workshop online held on November 9th, 2023, organised by XPRO Consulting Limited and ILVO. It was a success through an insightful and mutual learning co-creation process, participants discussed New Genomic Techniques through a SWOT analysis and proposed ideas for SMART actions. Read more [here](#).

Perspective

<https://doi.org/10.1038/s41477-023-01970-2>

Options for regulating new genomic techniques for plants in the European Union

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Check for updates

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Which option for regulating plants derived from new genomic techniques in European Union law is feasible and justifiable scientifically? The European Commission has proposed a new regulation on plants obtained by specific new genomic techniques, which is now subject to discussion in the legislative process. From the perspective of the European Commission's envisaged legal reforms of European Union law towards the integration of greater sustainability, we conclude that the option focusing on plant traits delivering sustainability benefits should be chosen, which is most fitting to facilitate a contribution to climate action, the transition towards climate

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PEER-REVIEWED SCIENTIFIC ARTICLE DECEMBER 2023

The first peer-reviewed scientific article, “Options for regulating new genomic techniques for plants in the European Union”, prepared by a team of co-authors from GeneBEcon is published in Nature Plants. Read the article [here](#) and press release on the article can be found [here](#).

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GENEBECON IN CORDIS ARTICLE FEBRUARY 2023

CORDIS has released an article featuring GeneBEcon's scientific publication that has been published in Nature Plants. The article highlights the study's aim to assist political decision-makers in forming a clearer picture of the available options for regulating NGTs for plants in the EU in the current debate on a draft law by the Commission. Read the CORDIS article [here](#).

Press Release: "EU Parliament adopts legislative proposal for NGTs"

8th February 2024

The consortium of the Horizon Europe project GeneBEcon welcomes the adoption of a legislative proposal for plants obtained by certain new genomic techniques (NGTs) by the EU Parliament

Following the adoption of a legislative proposal of the European Commission for NGTs by the EU Parliament's leading Committee on Environment, Public Health and Food Safety on 24th January, a vote in the EU Parliament's Plenary session took place yesterday.

With 307 votes in favour, 263 against and 41 abstaining, the EU Parliament members indicated their support for a proportionate regulatory approach on New Genomic Techniques (NGTs), taking into account

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EU PARLIAMENT VOTE ON NGTS PROPOSAL FEBRUARY 2023

The European Parliament has voted in support of an proportionate regulatory approach to NGTs by the EU Parliament's Plenary session. Read GeneBEcon's thoughts about it [here](#). Read more on the Legislative Proposal [here](#).

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MIDTERM SYMPOSIUM FEBRUARY 2023

On February 20th, 2024, the GeneBEcon Midterm Symposium was held in Brussels. The highlights of the symposium were the discussion with the representatives of the European Parliament and the European Commissions and the interactive dialogue on consumer choice drivers, which provided a nuanced understanding of the factors influencing public perception and acceptance of NGTs. More about the Symposium [here](#) and the Press Release [here](#).



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2ND RRI WORKSHOP FEBRUARY 2023

On February 21st, 2024, in Brussels, GeneBEcon organized the 2nd Responsible Research & Innovation (RRI) Workshop to address weaknesses and threats associated with NGTs, identified during the 1st RRI workshop in November. Participants collaborated to devise I-SMART* actions aimed at transforming challenges into strengths and opportunities. Read more [here](#).



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GREEN GENIUS EVENT MARCH 2023

GeneBEcon research on potato and microalgae was featured as a case example in the GreenGenius event on March 12th, 2024 in Brussels. The event was a plant-focused science forum, as satellite event for the EU Bioeconomy Changemakers festival, with the aim to empower early-career researchers active in plant sciences to drive the change towards a sustainable bioeconomy. Read more [here](#).

GREEN GENIUS

Event information:

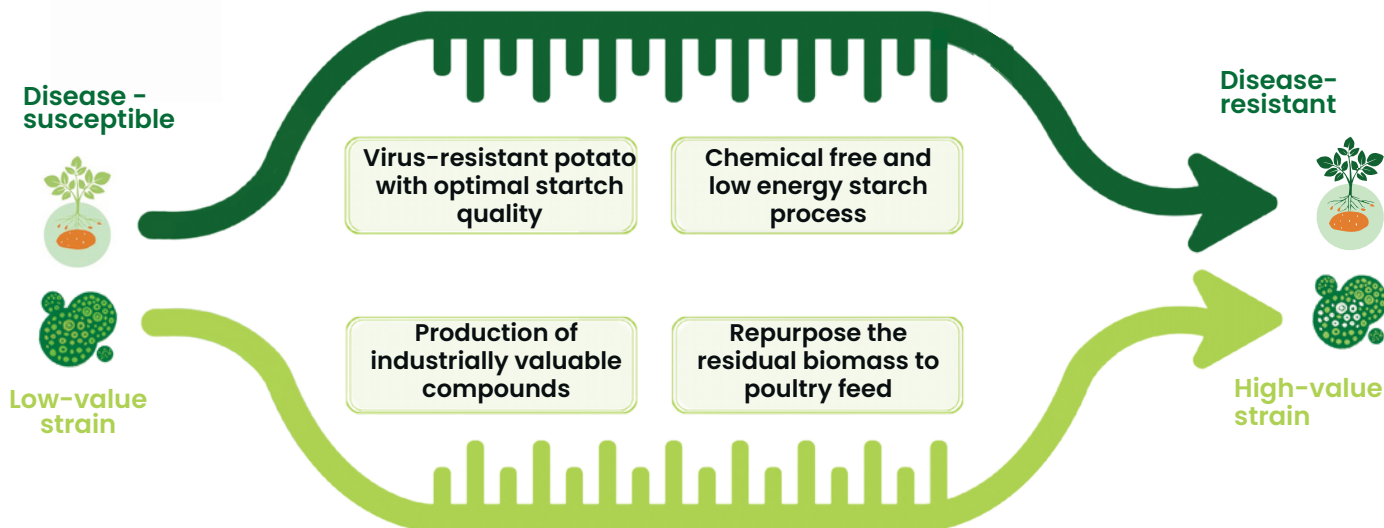
- 12 March 2024
- 12.30-17.30
- BluePoint Brussels

Featuring the EU research project focused on capturing the potential of gene editing for a sustainable bioeconomy

GeneBEcon
Project funded by the European Union



Capturing the Potential of Gene Editing for a Sustainable BioEconomy



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