PROGRAMME

Conference on genome editing for food safety and crop improvement

October 13/14, 2022 **Czech Academy of Sciences, Prague**

Czech Academy of Sciences

EU2022.CZ

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European Sustainable Agriculture Through Genome Editing

in cooperation with:

MINISTRY OF AGRICULTURE OF THE CZECH REPUBLIC

Institute of Experimental Botany of the CAS, v. v. i.

food | society | energy

October 13/14, 2022
Czech Academy of Sciences, Prague

The Czech Academy of Sciences (CAS), and the European Sustainable Agriculture through Genome Editing network (EU-SAGE) invite you to a conference on genome editing for food safety and crop improvement.

Over the last century, plant breeding has become much more knowledge-based and has accelerated the development of improved crop varieties. However, conventional practices in plant breeding will not suffice to reach in a short time frame more sustainable agricultural production. One of the recent innovations in plant breeding is genome editing which enables the development of desired plant varieties in a precise, more efficient and directed manner. There are many published studies that demonstrate the potential of genome editing to improve crop yield and quality, as well as to render agriculture more sustainable and climate resilient. Many applications are at pre-commercial stage but could reach the market in the short term, depending on the regulatory framework. In EU, all crop varieties obtained by using genome editing are currently subject to strict GMO regulations, which de facto prevents Europe from using and cultivating these genome-edited crops. In April 2021, the EU Commission published its study on New Genomic Techniques (NGTs) including genome editing and concluded that the current legal framework is no longer fit for purpose. Therefore, the Commission proposed to initiate a targeted policy action on plants obtained from certain NGTs, specifically 'targeted mutagenesis' and 'cisgenesis'.

The CAS & EU-SAGE conference will assess the status of research and developments in genome editing in plant breeding and how this differentiates from classical GMO technology. In doing so, the conference aims at providing an overview of state-of-the-art scientific evidence with respect to applications of genome edited crops and the possible impact of the technology for providing solutions in the transition to more sustainable agriculture as outlined in the 'Farm to Fork' strategy and 'European Green Deal'.
In addition, the CAS & EU-SAGE conference will address the potential socio-economic dimension of the use and cultivation of genome-edited crops in Europe as well as the impact of narratives in public opposition towards agricultural innovation, and how to counter this in future communication efforts. Finally, recommendations will be put forward on how the potential of genome-edited crops for more sustainable agriculture in Europe can be established with broader societal support.

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October 13

12:30–13:30 **Lunch**

13:15–13.45 **Registration**

13:45–14:15 **Welcome and Introduction**

Eva ZAŽÍMALOVÁ, President of the Czech Academy of Sciences, Czech Republic
Veronika VRECIONOVÁ, Member of the European Parliament, Czech Republic
Karel BLÁHA, Director of the Department of Environmental Risks and Environmental Damage of the Ministry of the Environment, Czech Republic

14:15–14:45 **Keynote**

Dirk INZÉ, Coordinator of the EU-SAGE network, Belgium,
Gene editing for crop improvement: the quest for a science based policy making

14:45-15:50 **Session I. The science behind genome editing of plants**

Jaroslav DOLEŽEL, Institute of Experimental Botany of the Czech Academy of Sciences, Czech Republic, *Leveraging Mother Nature's inventions to breed custom-designed crops*

Aleš PEČINKA, Institute of Experimental Botany of the Czech Academy of Sciences, Czech Republic, *New genomic techniques – Scientific discovery of the century*

Oana DIMA, EU-SAGE, Belgium, *European Sustainable Agriculture Through Genome Editing – The role of scientists in policy making*

15:50-16:20 **Coffee break**

16:20-17:50 **Session II. The potential of genome editing to address the sustainbility**

René CUSTERS, Vlaams Instituut voor Biotechnologie, Belgium, *Regulatory conditions necessary to unlock the genome editing potential*

Petra JORASCH, Euroseeds, Belgium, *How plant breeding innovation can help reconciling sustainability with agricultural productivity*

Dennis ERIKSSON (online), INN University, Norway, *GeneBEcon – Capturing the potential of gene editing for a sustainable bioeconomy*

Irene Sacristán SÁNCHEZ (online), DG Health and Food Safety, European Commission, Belgium, *Policy initiative on plants obtained by certain new genomic techniques – Sustainability aspects*

17:50-18:00 **Closing remarks**

David HONYS, Member of the Academy Council, Czech Academy of Sciences, Czech Republic

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October 14

8:30-9:00 **Registration**

9:00-9:10 **Welcome and Introduction**

9:10-10:50 **Session III. Potential impact of genome-edited crop cultivation and use in Europe**

Kai PURNHAGEN, University of Bayreuth, Germany, *Regulating NGT in the EU*

Herbert DORFMANN, Member of the European Parliament, Italy, *The ongoing political discussion on NGTs at EU-level*

Gregory JAFFE, Center for Science in the Public Interest, USA, *Securing Societal Benefits from Gene Editing*

Martin LEMA, Quilmes National University, Argentina, *Experience from Argentina and LATAM countries*

Gwen SWINNEN, GeneSprout Initiative, Switzerland, *GeneSprout Initiative – A young plant scientist initiative for open dialogue on genome editing*

10:50-11:20 **Coffee break**

11:20-13:20 **Session IV. Societal aspect and communication about plant breeding innovations**

Michaela ŠOJDROVÁ, Member of the European Parliament, Czech Republic, *The importance of public communication on NGTs*

Christian KAISER, Cluster of Excellence on Plant Sciences, Germany, *Science communication at the crossroads – Discussing plant breeding from knowledge to values*

Svenja AUGUSTIN, Cluster of Excellence on Plant Sciences, Germany, *Key experiences from communicating the benefits of genome editing to German politicians*

Jitka GÖTZOVÁ, Director of the Food Safety Department of the Ministry of Agriculture, Czech Republic, *Safety of Agri-Food Chain & Innovation*

Georges FREYSSINET, Association Française des Biotechnologies Végétales, France, *Enabling genome editing to make European agriculture more sustainable*

Andrzej NOWAK, Re-Imagine Europa, Poland, *Task Force on Sustainable Agriculture and Innovation of Re-Imagine Europa*

13:20-13:30 **Closing remarks / Outlook**

Tom VANDENKENDELAERE, Member of the European Parliament, Belgium

13:30 **Lunch**

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ABSTRACTS

Session I. The science behind genome editing of plants

Session I. provides the scientific background of new genomic techniques in plants and their application in agricultural crops of the next generation. The key features of this innovative approach will be explained and put in context with the whole range of breeding techniques. In particular, new genomic techniques will be compared with and opposed to the traditional mutagenesis that results in genetically modified plants. Finally, the role of scientists across Europe in providing the necessary knowledge and their active contribution to the evolving policy environment will be evaluated.

Session II. The potential of genome editing to address the sustainbilitysustainability

Session II. will go beyond the scientific aspects of the use of new genomic techniques by addressing the important issue of sustainability based on continuous development of resilient, high-yielding crop lines with the appropriate nutritional value under constantly and rapidly changing environmental conditions. In this respect, the innovation potential of new genomic techniques can only be fully exploited by combination of technological, economic, social, and regulatory drivers working together and by steady evaluation of their benefits and risks that should include also the stakeholders. There, an industry perspective on how the plant breeding sector could implement the innovations brought by new genomic techniques is critical.

Session III. Potential impact of genome-edited crop cultivation and use in Europe

The current EU legislation, unlike many other countries and regions, subjects the crops obtained by using new genomic techniques under strict GMO regulations. To change this approach, discussion about the regulation of these innovative techniques was not only initiated but gradually has been taken to a prominence by policy makers. Such discussion cannot include only scientific view and evidence but should also involve the whole society, and there, transparency, and societal engagement to achieve the necessary social license is necessary. In this perspective, the experience from two non-european countries, USA and Argentina, is interesting and enriching.

Session IV. Societal aspect and communication about plant breeding innovations

The broader societal aspects initiated in the previous session will be further discussed in more detail in the last Session IV. with trustful, open and knowledge-based discussion and scientific communication among policy makers, stakeholders and general public being of critical importance. This is particularly challenging in the environment of often polarized debates bringing together partners with different, often even opposite opinions and interests. Overcoming these challenges should be our target and all involved parties are required to carefully evaluate the advantages and limitations of the use of new genomic techniques within the framework of the sustainable agricultural and food production.