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LATEST NEWS

To:

Committee on Rural Affairs of the Seimas of the Republic of Lithuania
Ministry of Agriculture of the Republic of Lithuania
Ministry of Environment of the Republic of Lithuania
Lithuanian Vegetable Producers Association

RESOLUTION **of the international conference** **CLOSED ENVIRONMENT AGRICULTURE:** **TECHNOLOGIES AND CHALLENGES**

held at the Lithuanian Academy of Sciences on 14–15 November 2023

Representatives from science, studies, and government institutions and from businesses, farmers' and public organisations gathered at the international conference organised on 14–15 November 2023 by the Lithuanian Academy of Sciences and attended by high-level scientists and technologists from Lithuania, the Netherlands, Hungary, and Germany to discuss advances in indoor agriculture technologies as well as its challenges and their solutions. The participants in the conference discussed secondary use of raw plant materials, sustainable ways of increasing disease resistance in plants, the potential of photovoltaic technologies for horticulture, the development of water-saving aeroponic systems, and examples of regenerative agriculture practices in Europe, the Middle East, and Africa.

Recognising the importance of the challenges to be solved, the participants in the conference draw the attention of the responsible public authorities and the subjects of indoor agriculture to the following:

- Proper management of the parameters of the controlled environment in closed systems can result in maximum light energy efficiency. Biological and technological efficiency of energy use can be increased by selecting species-specific combinations of light intensity and duration. By controlling the spectrum of light, the duration of the plant development cycle can be significantly reduced.
- In order to achieve a sustainable agricultural model, it is necessary to develop easily degradable or recyclable substrates from renewable sources. Substrates currently used in agriculture are non-recyclable and contribute to climate change as their extraction is destroying ecosystems and consuming energy.
- To provide the consumer with agricultural produce of higher added value, it is important to broaden its diversity. The following plants are proposed to be included in the range of indoor agriculture: *Amaranthus tricolor* (Chinese spinach), *Perilla frutescens* (Beefsteak plant), *Sanguisorba minor* (Salad burnet), *Basella alba* (Malabar spinach), *Mesembryanthemum crystallinum* (Crystalline iceplant), *Portulaca oleracea* (Common purslane), and *Plantago coronopus* (Buck's-horn plantain).
- Controlled environment agriculture requires strategies to reduce the use of agrochemicals. Adjusting macro- and micronutrients in the nutrient solution can improve the resistance of the cultivated plants to pathogens.
- To encourage the development of modern indoor agriculture, preferential treatment should be given to energy and material resources.

Addressing these issues and applying the results obtained will manifestly contribute to the development of indoor agricultural technologies and consumer education as well as raise awareness of the principles of healthy and nutritious diets, the importance of climate change, and the promotion of sustainable choices.

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LITHUANIAN ACADEMY OF SCIENCES

RESOLUTION of the discussion

LEGAL REGULATION OF PLANT VARIETIES OBTAINED BY NEW GENOMIC TECHNOLOGIES (NGTs): BENEFITS AND CHALLENGES

held at the Lithuanian Academy of Sciences on 17 November 2023

Lithuanian scientists have developed and tested gene editing technologies and made them available for practical use. New genomic technologies (NGTs) enable making precise changes in the genome, which may be identical to those that occur naturally in nature or through breeding. For this reason, in the USA and other countries, the regulation of genetically modified organisms (GMOs) has for some time been based on the nature of the modifications and the effects they cause rather than the way they were produced. According to the outdated GMO regulation of the European Union, even plant varieties with identical genes can be placed in different grouping categories of species. Such regulation not only hinders overcoming the challenges of the twenty-first century (climate change, salinisation of soil, etc.) but also limits and distorts the global competitiveness of EU agriculture.

In response to these concerns, the European Commission is working on an updated legal regulation for plants developed by NGTs. Under the proposal under consideration, plants with same mutations, which can arise naturally or through traditional mutagenesis, would be classified as NGT category 1 and would not be regulated. All other plants with transgenes of the organisms in further systematic groups (animals, fungi, bacteria, etc.) would be classified under NGT category 2, and their regulation would remain as defined in the GMO Directive.

The regulation of the grouping of NGTs is distinguished by the fact that it focuses not on the way of creation of genetic modifications but on the nature of the specific modifications made in the plant genome. Such an approach is logical and correlates with regulation in the USA, Canada, Japan, and other countries. This regulation would facilitate the movement of plant-based products, ensure equal conditions of international competition, and promote international cooperation and technological development. This proposal is a compromise; the arguments of numerous stakeholders should be considered during its preparation.

The participants in the discussion agreed that this would be the right step that would not only ensure the competitiveness of EU agriculture in the future, but would also provide the consumers with an access to safer and healthier food products.

We call on the authorities of Lithuania to endorse and on the European Parliament to adopt a regulation allowing the development of promising plant varieties using new and safe genomic technologies as soon as possible.

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