The road to sustainability
Chapter 3

For a beneficial use of all possible tools - CEJA's position on New Genomic Techniques (NGTs)

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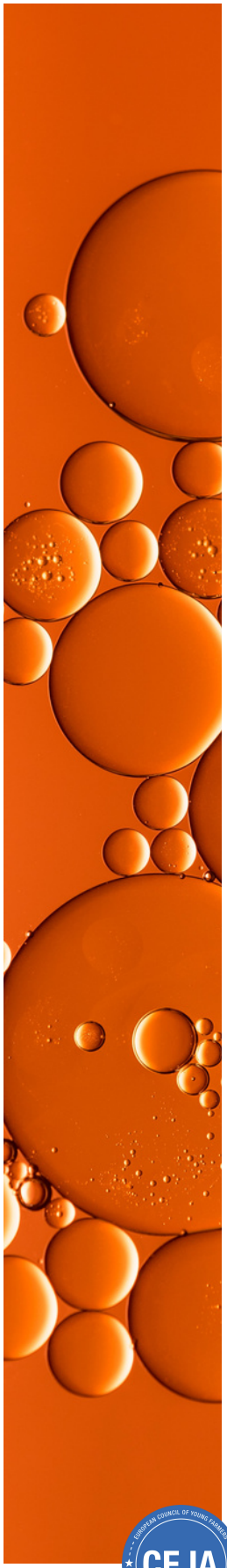
Introduction

Because young farmers believe there is no single pathway to sustainability in agriculture but are determined to move forward towards greater agri-environmental balance and socio-economic resilience, they are opened and curious towards new solutions that could enable and support them in such direction. In this perspective, New Genomic Techniques (NGTs) constitute one of the tools that could not only support farmers in their contribution to the transition but also benefit society, whether it is for better quality of food or greater sustainability in the way it is produced. As NGTs will not be a silver bullet, the use of new plant varieties thanks to targeted mutagenesis and cisgenesis must be a complementary piece that goes hand in hand with the full range of sustainable practices that farmers can work on.



As stated by the European Commission in its report, the regulatory framework set for Genetically Modified Organisms (GMOs) is not applicable to NGTs, because not adapted to these specific new techniques that have been developed over the last 20 years. Therefore, CEJA welcomes the willingness of the European Commission to propose a new legislation dedicated to NGTs for plants. Unlocking a new legislative framework allowing the use of targeted mutagenesis and cisgenesis in the European Union would have many advantages for the environmental, social, and economic sustainability of farms. Moreover, it is an additional tool to help in the pursuit of the objectives of the European Green Deal and the Farm to Fork Strategy.

If this is about giving more tools to farmers, let us not forget that the progress to be made in terms of sustainable farming needs an obvious prerequisite: farmers. Therefore, the broader roadmap for all policies must be to support the inclusion of more young active farmers. When it comes to the specific topic of NGTs, they wish to highlight what they see as essential for such tool to be effective and conducive.

1. NGTs: One tool for sustainability in agriculture

Environmental benefits – CEJA sees in NGTs the possibility of improving the combination of agricultural activities with the preservation of the environment. For example, improving nitrogen efficiency, reducing the sector's carbon footprint, and producing plants that require less water, fertilizers and plant protection products are priorities to be kept in mind in the development of NGTs. More generally, it should benefit to biodiversity and help mitigating climate change.

Benefits for society – In their pursuit to becoming more sustainable, including through the use of improved plant varietals coming from NGTs, EU young farmers would deliver benefits to society as a whole, guaranteeing food security while lowering their climate footprint and improving biodiversity preservation. Because the production system could become more efficient, with more adapted varieties developed more quickly, another benefit could be the decrease of certain costs, which could be beneficial for the affordability of food. NGTs can also open the door to products with higher nutritional quality such as healthier fatty acid content or the reduction of toxins and allergens (e.g., potatoes with reduced acrylamide content or gluten reduction). Finally, the preservation of traditional varieties can result from these advances, by adapting those to new climatic conditions or new alien species thanks to a single genomic modification providing them with the needed resistance.

Socio-economic resilience – The droughts of 2022 and previous years hit many European farmers, with dramatic consequences on yields. In addition to being a threat to food and feed production, it is also a threat to the economic viability of farms. More widely, agriculture remains an uncertain activity subject to other types of climate events and market fluctuations.
Agriculture must equip itself with plant varieties that can adapt to climate change (e.g., heat and drought tolerance), enable sustainable weed and pest management and require a lower use of fertilisers, plant protection products, and energy. As a result, the economic health of farms should be improved, through a combination of stable productivity and reduced costs. In parallel, the reduction of energy and fertilisers consumption must be put into the perspective of an EU agriculture less dependent on imports.

2. NGTs and Agri-Food actors

In every aspect of the debate around NGTs, young farmers want to be able to make informed and rational choices despite the technical complexity of these scientific developments. Therefore, they call for guarantees in terms of research steering and knowledge, specific training for farmers and farm workers, added value distribution, trade competition and communication towards consumers.

2.1 Research

Knowledge sharing – Farmer and genome scientist are two professions that may be complementary, but still very different. A central challenge for the acceptability of farmers and effective sowing of seeds produced with New Genomic Techniques is the necessity to share knowledge, so that every farmer can make informed choices. However, CEJA notes that some definitions of what constitutes NGTs are still very unclear for the farming community. A better knowledge of the techniques, their opportunities, but also their trade-offs will help to increase the level of acceptability among farmers. Once again, education and training are essential to support them in the development of their knowledge. Beyond the information to farmers, the knowledge sharing should also occur among the different entities that work on these techniques, so that every lab and company of every size can really be fostered in its innovation process.

Farmers' involvement – In addition to information and knowledge, farmers want to be involved in research activities. They have a deep understanding of field practices that goes beyond laboratory and greenhouse research and that is crucial to the implementation of NGTs. Socio-economic constraints are to be taken into consideration on top of the agronomical aspects, such as the integration of NGTs into the business plan, internal arbitration on farms with several managers, or the consequences on the communication throughout the value chain.

Research funding – Young farmers are aware that private companies have highly contributed to the progress made to master breeding techniques and provide seeds, a basis of farming activities. Yet they are convinced that a balance must be stricken in terms of research funding, with a complementarity between private and public research. This should lead to more transparency, but also to the investigation of traits that are less economically profitable for the seeds industry, but beneficial for farmers and society. It is also the case for allowing research on locally adapted varieties, which are often key in the economy of an entire rural area all along the value chain.

Relationship with ecosystems – The use of NGTs will lead to farming practices than can help in the preservation and restoration of our ecosystems and biodiversity. This should not prevent us from paying attention to the potential imbalances that certain traits obtained through cisgenesis and targeted mutagenesis may bring. The framework envisaged by the European Commission should be a vigilant system, in which a continuous monitoring of the effect on biodiversity will be central.

2.2 Seed providers

New varieties for new challenges – Farmers encourage the development and commercialisation of new varieties by the seeds industry. They see it as an opportunity to access a wide range of breeds constantly evolving to be able to respond to the constraints of their soil and climatic context. This cooperation is key to access varieties with higher yields, more resistant to climate events or pests and less input intensive.

They also welcome the possibility of producing higher quality of food. However, CEJA members do not want to see as traits to be prioritised the possibility of strengthening the crops resistance to plant protection products, although they acknowledge that, in some cases, it could lead to environmental benefits linked to the use of less harmful products.

Access for small players – Farmers believe in the importance of maintaining freedom of choice in the purchase of their seeds. In this regard, opening the regulatory framework should create more incentives to small players (SMEs, small labs) to develop such technologies. At the moment, big seeds companies have more means and flexibility to invest in these technologies and to face regulatory obstacles. Young farmers want to avoid any oligopolistic situation that would restrict their choice and bargaining power in the purchase of seeds.
Having more players including smaller ones is crucial if we want to have tailored solutions specific to the multiplicity of farming systems and territorial characteristics. To help with this, any variety bred using genome editing that could be the result of a traditional breeding process must not be patentable, so that innovation is fostered and making the availability of new tools for farmers easier and quicker. A system of Community Plant Variety Office (CPVO) instead of patent law will create a more open access research to the benefit of the EU farming community. The new set of rules must encourage the development of the techniques in every production system and ensure that minority areas are not disadvantaged by their size or location because of specific changes in seeds that are specific to geographical areas.

Business model implications – While the seeds market is specific because of the “breeding exemption”, allowing the free use of genetic combinations, farmers would like to better understand the business model that seeds suppliers want to implement with NGTs. More concretely, they would like to have projections on the price changes that this could imply for the purchase of seeds. The development of new techniques requires substantial investment in research and development which must necessarily lead to a return. This question is even more important not only because of this "breeding exemption", but also because of the impossibility to trace the actor behind a change made.

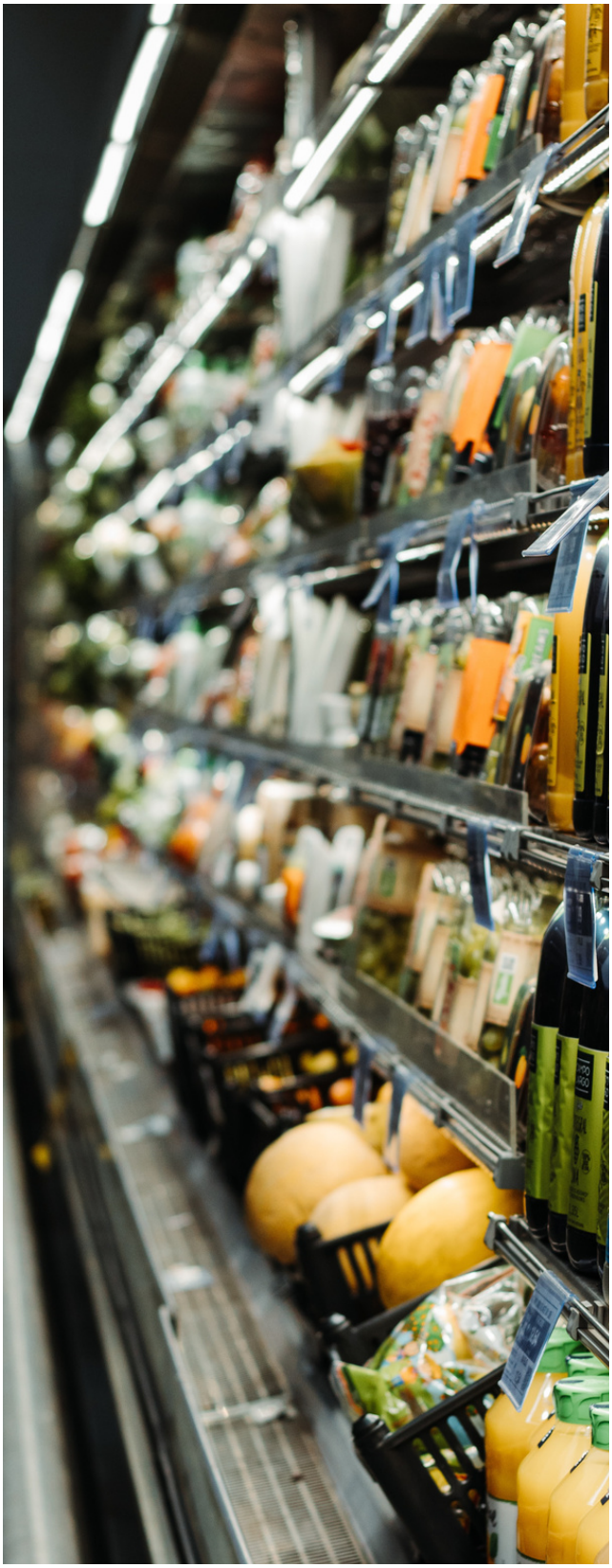
Traceability – Since the characteristics of a plant have implications on how to grow it, it is necessary that seeds providers ensure the traceability of plants produced with NGTs when they are sold to farmers. Farmers will then be able to provide information about the plants they are sowing thanks to the already existing record systems.

2.3 Processors and distributors

Cooperation – The cooperation of all downstream actors in the value chain is crucial to enable the sale of these products to be effective. They play a role to make the difference with GMOs explicit.

Sharing of added value – The decision of a farmer to switch to seeds developed with NGTs would be a form of entrepreneurial freedom. It needs to be kept in mind that it could potentially bring benefits for the society and consumers, whether it is in the form of an environmental service or healthier food. As these benefits might have a monetary value, there is a need to ensure balance and sharing in the value chain. Farmers are too often price takers, with a very weak bargaining power in the food value chain.[1] It is crucial to have a fair repartition of the added value brought by New Genomic Techniques.

[1] CEJA Position Paper, "Resilience and sustainability of the agri-food supply chain", June 2021



2.4 Consumers

Public debates about NGTs must be fuelled by scientific evidence and avoid any irrational misperception. More generally and regardless of the future legal provision, it is essential to foster a collective effort to demonstrate and communicate the positive impact of these techniques, the scientific differences between GMOs and NGTs and the fact that it might be a fundamental instrument for young farmers.

CEJA members highlight the necessary pragmatism in how we inform consumers about the way food is produced. It is important to adopt a certain level of transparency along the whole value chain while avoiding over-information that might result in confusion, rejection, or logistical difficulties (separation of these products, tracing along the value chain). It will be necessary to ensure that the difference with GMOs can be clearly stated, but also the benefits that result from the use of such techniques. The information and the stakes will differ whether it is to communicate on the use of an NGT in general, on the technique precisely, on the trait provided, or on the resulting benefit.

Policy Recommendations

1. Provide a clear and legal definition of NGTs – Working on this file has proved to CEJA the necessity of having a clear and legal definition of New Genomic Techniques, so that every actor of the value chain can communicate in the same way, and the scope of techniques that may be allowed with a new legislation is clearly bounded. Today, the public perception of NGTs might be assimilated to GMOs, despite the two different realities it refers to.

2. Create a new legal framework separated from the GMO rules – The regulatory framework of the European Union should allow the development of New Genomic Techniques and avoid the creation of any obstacle to their use, if they deliver safe and sustainable benefits for farmers and consumers. Not only is the 20-year-old framework set for Genetically Modified Organisms not adapted, as specified by the European Commission in its study[2], but creating a differentiated framework would allow to regulate more precisely the targeted mutagenesis and cisgenesis techniques. There is an opportunity to be seized, in line with the objectives of the Green Deal and the Farm to Fork Strategy. Furthermore, the openness of NGTs development is crucial for our competitiveness while other countries are already fostering it.

3. Establish a monitoring system for improvements related to the use of NGTs – Monitoring the consequences of the use of NGTs is essential, not only to ensure the relevance of authorising these techniques, but also to justify any additional costs incurred by the farmer, and report to consumers and civil society. Improvements are to be observed in priority for environmental benefits, the resilience of farms and food quality.

4. Support public research and knowledge sharing on NGTs to allow a great diversity of findings and actors involved in this field.

5. Ensure freedom of choice for farmers – Without a clear view on the challenges linked to farmers' uptake, such as the price, the future legislation must ensure that every farmer keeps his right to choose the seeds he wants to sow, whether it is NGTs or non-NGT seeds. It means that plant breeders should provide the information of the technique used when selling seeds to farmers. Moreover, it means that both types of seeds, using NGTs and not using it, must remain accessible.

6. Take advantage of other regulatory framework abroad – While many countries have already regulated NGTs, the European Union must keep an eye on those countries to benefit from the best practices and avoid mistakes done elsewhere.

7. Coherence with trade policy – The authorisation of NGTs must be consistent with EU trade policy and our imports to ensure level-playing-field for European farmers. The authorisation of these techniques is all the more logical knowing that they are used abroad but cannot be detected when imported.

8. Compatibility with all production systems (including organic farming) – CEJA sees NGTs as a mean of improving the sustainability and resilience of agriculture to climate change, all this while preserving the great heritage of biodiversity and distinctiveness of EU agriculture. These objectives should be pursued in all agri-food chains and production methods, without distinctions. All young farmers, including those in an organic system, should be able to choose and to make use of NGTs.

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Targeted mutagenesis and cisgenesis can be part of the set of tools to be made available to reach more sustainability in agriculture. This is about creating new varieties for new challenges. A new legislative framework at EU level will help deliver more for the environment, the society and farmers.

Cooperation between all stakeholders will be key to make it a success, with private and public research sharing knowledge and involving farmers, a seed sector accessible to small players and transparent about the implications for its business model, and a fair sharing of the added value across the food chain.

The challenges are great for the new generation of farmers. The response must be as comprehensive as possible to pave the way towards social, environmental, and economic sustainability, and thus give long-term perspectives and references to young people in the farming sector.

[2] European Commission, Study on the status of new genomic techniques under Union law and in light of the Court of Justice ruling in Case C-528/16, 21 april 2021, available here.