



New Animal Breeding Techniques (NABTs) : *Position Paper*

Introduction

The animal production sector in Europe is facing many challenges. The sector has to meet increased demands for animal proteins from a growing world population, whilst respecting high standards for food safety and food quality.

At the same time the sector has to deal with increasing shortage of resources, climate change, increasing demands to reduce its environmental impact, calls to reduce its contribution to the development of anti-microbial resistance, combatting (new) emerging diseases (partly related to climate change), ensuring biodiversity and with a growing attention of the society for animal welfare.

The progress made in animal breeding and reproduction by continuous innovation and adaptation in the past decades shows that the breeding and reproduction sector in Europe has the potential to effectively deal with these challenges.

In the last 10 years this process has been accelerated with the introduction of genomics. The potential of this novel breeding technique is still not fully exploited yet.

However, new breeding techniques like genome editing can potentially help to create further genetic improvement and – moreover - speed up the existing breeding process.

Such techniques can be applied to improve animal wellbeing, to support a sustainable livestock sector and thus to benefit the society as a whole.

In this context the animal breeding and reproduction sector should have the possibility to use these techniques where possible and appropriate.

New Animal Breeding Techniques like Genome Editing

With the use of genomics, the animal breeding and reproduction sector has been able to increase the selection accuracy. At the same time the knowledge of genes and mutations, associated with relevant traits, has expanded and is still growing exponentially.

With NABTs like Genome Editing, the genetic progress could be much more focused/targeted, much higher and realised much faster, without losing genetic diversity. Such progress could be achieved for all aspects of animal protein production which are relevant today: best use of resources, food quality, food safety, environmental impact, animal health and animal welfare.

What NABTs like Genome Editing could add to the current potential of animal breeding is enormous. It is important to highlight the environmental and societal benefits of these technologies in animal breeding while simultaneously addressing **consumer concerns**. The use of new GE practices is not solely for the production of plant species to make them “resistant to selective herbicides” or equivalents in animals. Improved animal health and welfare, more efficient use of resources, production of European high quality and **sustainable animal products**, protection of wildlife are some of the benefits for European consumers from gene editing. Here are some examples how better breeding research and efforts of breeding companies could help farmers to improve welfare and productivity and reach societal challenges with GE techniques:

Examples:

- **Animal health** ; creating resistance against diseases such as PRRS in pigs or Avian influenza in poultry, to increase the protection of livestock health.
- **Public/Human Health** ; Increase resistance in livestock against animal diseases assists to reduce other associated diseases in farming and the overall use of antibiotics. Some of these diseases are zoonoses and fight against them in livestock helps to improve human and animal health.

- **Animal welfare** ; enforcing hornless cattle to avoid the dehorning procedure of calves and protect farmers and castration-free piglets
- **Wildlife protection** ; gene editing in aquaculture can protect wild populations of fish from reproducing with farm escapes
- **Better use of resources** ; improving the feed efficiency
- **Climate change** ; breeding of ruminants with lower methane emissions
- **Sustainability** ; with regards to a growing human population, the ongoing climate change and the economics of low income for farmers, gene editing is a tool to improve sustainability in livestock production

An important characteristic of the newest generation of NABTs like Genome Editing is the relative predictability of genomic changes. Nonetheless their efficiency could be and should be improved and some of them may raise concerns.

Thus, continuous efforts in research and innovation should be given the highest priority. Further development, refinement and use of NABTs like Genome Editing to help meeting global challenges is now of growing interest worldwide.

In this respect, to continue to supply European consumers with safe and high quality and sustainable food, the animal breeding sector needs to preserve competitiveness by maintaining access to the most safety and efficient technologies in animal genetics.

Position Statements

1. EFFAB is convinced that NABTs like Genome Editing can provide efficient tools to increase the sustainability of the animal breeding sector, but EFFAB is also well aware that it is important to learn more about NABTs like Genome Editing and to investigate their effects e.g. by comparing NABT with the originals. For this reason NABTs like Genome Editing are deserving a place on the EU Research Agendas.
2. Research on NABTs like Genome Editing should be regulated but not prohibited by any regulation. Gene editing techniques represent a safe and efficient technology for animal producers and breeders, specifically when reproducing the exact modifications which already occur in nature. Scientists working on this technology must of course adopt strict ethical and food safety regulation.
3. The ruling of ECJ of 25th July considers that organisms obtained by mutagenesis are GMO and are subject to obligations laid down by GMO directive. This ruling makes very difficult for EU animal breeding and reproduction companies to compete with companies in countries outside the EU. Moreover, small companies should also have more difficulties in terms of cost applying for agreements in each MS because of the GMO directive. In this respect, EFFAB asks the EU Commission for a legal and clear European framework for animals bred by NABTs like Genome Editing and outside the scope of the GMO Directive.
4. EFFAB also asks the EU Commission to provide a legal import framework in order to ensure transparency with the introduction of Genome Edited animals, off-spring and products of Genome Edited animals in Europe. Efficient methods have to be developed to identify and trace Genome Edited animals or products. Otherwise, European animal producers and breeders will be unfairly competing against GE products imported from outside the EU, while they are prevented from using this technology.

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