Conference "New breeding solutions for new farmers challenges", 11 October 2016: EP, Brussels.

Host: MEP Hannu Takkula. Moderator: Max Schulman

Moderator's notes

Introductions

- Farmers are faced with the immense task of producing more to meet the increasing demands for food, feed, fibre and biomass, and that with lower impacts on the environment and under the effects of a changing climate. Farmers need tools to address these challenges.
- This event was organised to promote fact finding and open discussion on the conditions under which new breeding tools, such as genome editing, can contribute to sustainable farming.
- Plant breeding aims to exploit genetic variation to introduce beneficial properties for the farmer, and to combat major agricultural challenges. Over the last century many tools in plant breeding have been developed, such as embryo rescue and mutagenesis induced by chemicals and radiation in the early 20th century, marker assisted selection and genetic modification in late 20th century, and techniques as genome editing early 21st century. Genome editing is targeted, knowledge based, more precise and much faster (see for example the presentation by Custers through this link).
- These techniques could be applied with a large variety of crops, including maize, grapes, rice, etc (see for examples the presentations by d'Armaillé and Piovan through this link).

Discussion

- The effects of climate change creates challenges for European farmers from North to South, ranging from changes in pest an disease patterns to changes changes in growing seasons.
- Genome editing can help addressing with these challenges. Genome editing can create a 'marriage' between innovation and tradition: for example it enables us to make more resilient versions of Chardonnay or Bintje without sacrificing their beloved traditional culinary properties.
- Genome editing is very cost effective, and as a result also the public sector as well as the many small and medium plant breeders in the EU can adopt this technology. These new technologies, which are sometimes called the 'democratisation of science', can also be applied with animals and micro-organisms.
- For regulatory purposes it is important to know in which cases organisms developed with these techniques fall under the definition of GMOs, i.e. in which cases have novel genetic combinations been produced beyond what is possible through mating and natural recombination, as this is a decisive criterion that determines whether an organism is a GMO or not. The recent request to the ECJ addresses only a part of that question. The term NBTs covers a wide range methods that can have different results, these nuances are key when understanding the differences or overlaps with GMOs. Generally, the benefits of these new techniques include: reduction of loss due to drought, diseases, pests, marginal soils; reduction of CO2 emissions; reduction of dependence and impacts on chemical input; improving shelf life and processing properties, help European SMEs stay competitive, and help to tailor plant breeding to the needs in the different zones in Europe.

- One of the overall aims in agriculture is to reduce the impacts of the use of pesticides and fertilizers. Techniques such as genome editing can also help with that, and we need to be able to integrate organisms developed through genome editing in other forms of farming, such as organic farming.
- To harvest the potential of these new techniques, we need a level playing field for large and small players, taking into account competitiveness, regulatory certainty and a clear legal framework, the emergency of a political clarity (e.g. do we aim for innovation or importing GMOs), and better consumer information.
- To better inform consumers, we need to learn from what went wrong with the public debate on GMOs. One flaw in the GMO debate was the 'either or' thinking instead of than understanding that for the future of agriculture farmers need to have as many tools as possible to choose from. GMOs or NBTs are not considered to be the one and only solution.
- We need new methods and innovation to solve new problems more targeted and more quickly, whereby we need to move in the direction of precision breeding in combination with precision farming.