Plants for the Future's response to the Call for evidence for A Strategy for European Life Sciences

Plants for the Future welcomes the initiative to develop **A Strategy for European Life Sciences**, as they play a crucial role in our society. As a European Technology Platform representing the plant sector and promoting the flow of innovation from basic research to the market, we highlight the crucial role of plant breeding R&I.

Plant breeding is the heart of our agrifood systems, evolving from ancient domestication to today's precision breeding. Life sciences have advanced our knowledge and understanding of plant biological processes and how genetics determine characteristics and performance. At the same time technological developments have enabled us to better leverage this knowledge to target variations in plants genomes more precisely and efficiently, resulting in the high performing plant varieties that we all enjoy today. Since the mid-20th century, plant breeding, combined with fertilisers and plant protection solutions, have boosted agricultural productivity in Europe, while reducing the required agricultural land. In the last two decades, plant breeding alone has contributed to ~67% increase in agricultural productivity[1]. Despite this, funding allocation to plant breeding R&I, within the EU Framework Programmes, has been going down since FP7[2].

Agrifood systems provide biomass for food, feed and the wider bioeconomy. Plant breeding R&I enables the development of varieties that require fewer resources, tolerate biotic and abiotic stresses better, and are optimised for diverse downstream uses. The development of multipurpose plants, from which some parts can be used for food or feed, while the rest can be used in other sectors (eg chemicals, energy, pharmaceuticals), will be essential to phase out fossil fuels, while avoiding competition with food and feed. However, breeding for such plants is extremely complex, requiring the combination of many characteristics, while avoiding trade offs for others. This requires much time and resources, reducing the business case for it. Plant breeding innovation, such as New Genomic Techniques, can play a crucial role by streamlining these previously unfeasible breeding goals. In addition, public-private partnerships are crucial mechanisms for addressing R&I gaps and rapidly transferring innovations into practical applications.

Europe has historically been a global leader in life sciences. However, in recent decades, Europe has fallen behind competitors like the United States and China. This lag is primarily due to an innovation

[1] Steffen Noleppa and Matti Cartsburg (2021) The socio-economic and environmental values of plant breeding in the EU and for selected EU member states

[2] Plant's for the Future ETP (2024) – Trends in European Public Investment in Plant Breeding R&I

gap that limits Europe's ability to translate research into products and services. Therefore a future life sciences strategy should include

- **An increase in EU wide investment in plant breeding R&I** to ensure the resilience, competitiveness and sustainability of our current and future agrifood systems and a more circular bioeconomy
- Better leveraging and enabling the uptake of new technologies, particularly biotechnologies, by **streamlining regulations and ensuring a fit for purpose innovation-friendly legislative environment,** in line with scientific progress
- **Promoting public-private partnerships** to ensure the flow of research outcomes are translated to knowledge, products or services, for the benefit of society

While plant breeding R&I alone cannot address all climate change and sustainability challenges, there is a gap between the EU Green Deal's policy goals and public investment in the field. This investment is essential to compensate for yield losses due to reduced inputs and weather volatility, thereby ensuring global food security and Europe's strategic food autonomy.