



European Plant Science Organisation
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Position Paper

Contributions from plant research and innovation to EU competitiveness

02.05.2025

EPSO welcomes the European Commission consultation and provides input on the importance of the next Framework Programme (FP) for EU competitiveness.

The European Research and Innovation FPs are crucial to enable scientists and innovators across Europe to collaborate to generate knowledge, to apply this knowledge to address today's and future challenges and to help building a strong, competitive and resilient, inclusive and democratic European society and improving life on earth.

All scientists and entrepreneurs would benefit from a **stronger stand-alone R&I FP with a ringfenced budget** as a crucial factor to increase EU competitiveness.

They would benefit from

- a stronger European Research Council (**ERC**) and reinforced Marie Skłodowska-Curie Actions (**MSCA**).
- **Reinforcing the collaboration pillar** (in Horizon Europe pillar 2) and adding Research Actions (RAs) as instrument in there to overcome the gap of **collaborative basic research** and **create an upwards research and innovation spiral**.
- Policymakers **defining the goals but leaving the pathways to reach them open** to beneficiaries to truly enable innovation.
- Consulting **European academic associations** and European industry associations to identify funding priorities.
- Simplifying implementation procedures: Increase **trust in and flexibility for beneficiaries**.

Plant scientists took an active role in the EU FPs from the start and want to contribute in the future.

They are active in pillar 1, mainly in the ERC and the MSCA, both working very well. They could contribute more to the collaboration pillar (in Horizon Europe pillar 2), particularly on the theme on Food, bioeconomy, natural resources, agriculture and environment. To this end, we suggest the following improvements:

- Further implement the following concepts:
 - ❖ Address **Food and Nutritional Security, environmental sustainability, biodiversity** (natural and cultivated), **human health and bioeconomy in parallel** as much as possible.

- ❖ **Improve / adapt crops** towards ‘**Diverse crops for diverse diets and human health and resilient production**’.
- ❖ ‘**Combine approaches on crop improvement, crop management and crop processing**’.
- ❖ Policy makers should **define the goals but leave the pathways** how to achieve these **open** to the stakeholders
- **Create a new heading ‘Enabling sustainable crop improvement’ in the Work Programme and / or partnership ‘Plant biology and breeding’:**
 - ❖ Plant (systems) biology, crop improvement and plant breeding to achieve a critical mass investment enabling the community to substantially help addressing the challenges mentioned above and interacting with partnerships on biodiversity, agroecology, food systems.
- **Better link the health theme (in HE #1) with the food, agriculture, biotechnology theme (IN HE #6)** to truly enable plant biologists, breeders, processors, nutritional scientist and health experts to interdisciplinary research and innovation to improve nutritional compounds in plants for the human diet, which are then further protected during crop processing and human digestion. In addition, plant made pharmaceuticals can be co-developed for medical purposes.

On the following pages we will shortly explain each of these recommendations.

1 - Ensure a stronger stand-alone R&I Framework Programme with a ringfenced budget

EPSO firmly supports the need to scale up European Research, Development, and Innovation (RD&I) through a stronger framework programme with a ringfenced budget to contribute to EU competitiveness.

2 – Strengthen the European Research Council (ERC) and reinforce the Marie Skłodowska-Curie Actions (MSCA)

Two ERC and the MSCA programmes jointly promote excellence, generate world class science feeding into innovation in Europe and educate the next generation of scientists and entrepreneurs.

To preserve the important role of the ERC for frontier research and for driving innovation, the independence of the Scientific Council of the ERC must be maintained.

3 - Reinforcing the collaboration pillar (in HE pillar 2) and add Research Actions (RAs) as instrument in there to overcome the gap of collaborative basic research and create an upwards research and innovation spiral.

Throughout Horizon 2020 and currently in Horizon Europe, collaborative basic research has been marginalised, resulting in a gap in the Research and Innovation cycle. In Horizon Europe and in the upcoming FP10, the collaboration part (Pillar 2 in HE) must be designed to achieve a balanced participation from basic and applied research in

addition to demonstration and innovation actions. This will strengthen the effectiveness of the R&I cycle of the European research and innovation ecosystem by promoting a continuous exchange between advancement of knowledge and applications at different TRLs. Ultimately, this strategy will meet the needs of the industrial sector and private companies.

To help overcome the gap of collaborative basic research and complete the research and innovation cycle in the R&I continuum, we recommend making collaborative basic research an intrinsic component of an existing instrument (R&I Actions) and introducing a new instrument (Research Actions) focussed on collaborative basic and applied research. This is particularly necessary to address Global Challenges. In this way an upward spiral would be created that is adding new knowledge in each round, elevating the innovation to the next higher level.

4 - Policymakers should define the goals but leave the pathways to reach them open

For the pillars with a top-down component ('Global Challenges' and 'Innovative Europe'), policymakers should define the goals but leave the choice of the pathways to them open to the stakeholders to encourage innovation, flexibility, and evidence-based confirmation. This would allow pathways to compete as they are neither preferred nor excluded and combining the advantages of different approaches can be encouraged. Furthermore, this approach would enable policymakers to mobilise the European research and innovation community and all interested actors to achieve the targets set out for example in the EU Green Deal and in the UN Sustainable Development Goals. FP10 could for instance have much broader calls inviting contributions to a certain goal and then fund a group of topics encouraging true innovation.

5 - Identify funding priorities: Consult European academic associations and European industry associations.

To date the Commission consults scientists mainly directly or through Member States, whereas other stakeholders, such as NGOs and farmers, are consulted both, directly / through Member States and through their European level organisations. We strongly recommend applying the same practice to scientists and industry, thus consulting scientists in addition through their European associations, which can be reached directly or through the Initiative for Science in Europe (ISE) and the League of European Research Universities (LERU). This will add to individual expertise a broader, well balanced, reflection from the entire science community from the respective discipline (medical, animal, plant science; physics, mathematics, chemistry, social sciences ..). This is crucial for identifying strategies and funding priorities, but equally important for High-Level Advisory Groups, Stakeholder Groups and governance structures for European Innovation Partnerships (EIPs) and Public-Private Partnerships (PPPs).

Similarly, in Commission consultations, there is a category for company associations and for NGOs, but no category yet for academic associations, this should be added in future to truly reflect their status – currently they have to be 'academic/research institution' or 'other'. In consequence, to state the organisation size, to the choice of 'number of employees', a choice in 'members represented' should be added, as an association with 1-5 employees could well represent many thousands of people.

6 - Implementation procedures: Increase trust in and flexibility for beneficiaries.

The Commission already undertook several measures to ease administrative burden. However, by further increasing trust in beneficiaries, the administrative burden could be substantially reduced, and the impact of the projects increased: give more flexibility to beneficiaries in shifting funds in one project (currently limited to 10%) as long as the goals are achieved or even more could be achieved:

- shifting their own funds without limit
 - between Work Packages
 - between categories (e.g. between 'Personnel cost' and 'Other Direct Cost')
- shifting funds between partners up to 20% based on approval by the project coordinator.

In addition, increasing trust in beneficiaries can ease the reporting burden by replacing monthly signed timesheets by one page per reporting period that is signed by all people that worked on that project in that period. This could be further eased by a flat rate agreement.

7 - Further implement the following concepts:

- ❖ Address **Food and Nutritional Security, environmental sustainability, biodiversity** (natural and cultivated), **human health and bioeconomy in parallel** as much as possible.
- ❖ **Improve / adapt crops** towards '**Diverse crops for diverse diets and human health and resilient production**'.
- ❖ '**Combine approaches on crop improvement, crop management and crop processing**'.
- ❖ Policy makers should **define the goals but leave the pathways** how to achieve these **open** to the stakeholders

To date, still most calls focus on one or maximum two of these components, while a comprehensive approach from the start will gain a higher impact. For instance, many underutilised crops (fruits, vegetables, cereals) have a high nutritional value and were traditionally cultivated and consumed locally but have virtually disappeared due to modern cropping systems and the requirements of globalized markets. Rediscovering those highly nutritive traditional crops can greatly help to diversify our diet and make it more nutritious with their micronutrients (ions, (pro)vitamins, phytochemicals - including anti-oxidants ..) and lead to more agricultural biodiversity. As they were neglected in breeding programmes due to low return on investment, public efforts are needed to improve their resilience to abiotic stress (e.g., drought and extreme temperatures due to climate change), pests and diseases and thus generate an income for farmers who will then cultivate them, switching from mainly staple crops to include in their portfolio as well high-quality niche crops.

More diverse crops will be less prone to pests and diseases than a few staple crops and thereby increase resilience of agriculture in the longer term. Furthermore, intercropping or mixed cropping / strip cropping can become management practices enhancing environmental benefits.

Further along the value chain, crop processing has to be adapted to these niche crops on the field and postharvest as to protect and possibly enhance the share of highly nutritious compounds. In addition, plant compounds which increase the bioavailability of the nutrients during human digestion can be achieved either from the original crop or

added from another crop during processing to further improve the nutritional value of the diet.

Going in the other direction, crops need to be improved as well to meet new crop management and new crop processing practices.

Combining all approaches and actors from the very beginning, ranging from knowledge generation to technology, management and processing, will ultimately gain the highest impact for humans and the environment.

8 - Create a new heading 'Enabling sustainable crop improvement' in the Work Programme and / or partnership 'Plant biology and breeding':

Plant biology and breeding - Plant (systems) biology, crop improvement / adaptation and plant breeding to achieve a critical mass investment enabling the community to substantially help addressing Food and Nutritional Security, environmental sustainability, biodiversity (natural and cultivated) and human health and interacting with partnerships on biodiversity, agroecology, food systems.

Over the past decade, R&I investment in the European programmes have focused on crop management and processing, while those in crop improvement were marginal. This gap should be filled with a critical mass R&I investment generating knowledge on basic biological processes (e.g. host-pathogen interaction, gene regulation including gene silencing ..) while combining existing knowledge to reach an optimal combination of tolerance to abiotic stress (drought, heat, frost, partly due to climate change), with tolerance to pests and diseases (reducing pesticides and fungicides), improving nutrient use efficiency (reducing fertiliser needs), harnessing plant-microbe interactions to further strengthen plants and reduce inputs, and last but not least aiming to protect or enhance the nutritional value of the crop. By including niche crops in the effort in addition to staple crops, this will increase cultivated biodiversity and resilience. Such a partnership is urgently needed to make the agricultural sector fit for the rapidly changing climate and additional volatilities due to global crises.

In addition, crop improvement is needed to support the anticipated diet shift towards more plant-based diets and for example plant-based proteins.

A strong partnership on plant biology and crop improvement / adaptation – currently the major missing link in EU programming - can interact from the beginning with existing / evolving partnerships on biodiversity (focusing on natural diversity), on agroecology (focusing on crop management) and on food systems (focusing on crop processing and the way we supply food) and the soil mission.

To bridge the gap in time until a new partnership or a dedicated intersectoral programme can be set up and active, the urgently needed boost of these R&I areas needs to be initiated by strategic subprogrammes:

- The biodiversity destination – triple the effort under heading 'Biodiversity friendly practices in agriculture, forestry and aquaculture'
- The food systems destination – add the heading 'Enabling sustainable crop improvement' – comprehensive approaches from plant (systems) biology to deliver specific species or varieties of crops (crop improvement and plant breeding) adapted

to and contributing to Food and Nutritional Security, environmental sustainability, biodiversity (natural and cultivated) and human health. This will enable the shift from 'elite varieties under optimal conditions' to 'nutritious and resilient varieties under a range of constraints' (environment, climate, process, consumer demands ..).

9 - Better link between the health theme (in HE #c1) and the food, agriculture, biotechnology theme (in HE #6)

to truly enable plant biologists, breeders, processors, nutritional scientist and health experts and social scientists to interdisciplinary research and innovation to improve nutritional compounds in plants for the human diet, which are then further protected in crop processing and human digestion. In addition, plant made pharmaceuticals can be co-developed for medical purposes.

To date joint calls enabling this R&I are non-existent and could be implemented by an 'alternating call' system under which the call is published and financed in one year under theme 1 and the next year under theme 6.

This statement was developed by Karin Metzloff based on intense discussions with EPSO members at the 2024 EPSO General Assembly, the April 2025 EPSO Board Meeting and Working Group Meetings 2024-2025. It was finalised by email.

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Useful links

ISE – Initiative for Science in Europe <https://initiative-se.eu>

- [ISE main recommendations towards Framework Programme 10 \(FP10\)](#), 27.2.2025
- [ISE Annex on Boost collaborative basic research in HE and FP10 V3](#), 15.1.2025

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- EPSO: [41 organisations including EPSO urge Commission President von der Leyen](#) to safeguard an independent EU Research and Innovation Programme (FP10), 10.4.2025
- [EPSO answers questions on Horizon Europe and FP10 by M Heitor / HLG](#), 17.7.2024
- [EPSO feedback to the European Commission Horizon Europe Work Programme 2025](#), 29.5.2024
- [EPSO welcomes the European Commission's Horizon Europe Strategic Plan 2025-27](#), 29.3.2024
- [EPSO Contributions from plant research & innovation on the past, present & future of the European Research & Innovation Framework Programmes 2014-2027](#), 21.2.2023

About EPSO

EPSO, the European Plant Science Organisation, is an independent academic organisation that represents around 200 research institutes, departments and universities from 31 countries, mainly from Europe, and 2.600 individuals Personal Members, representing over 24 000 people working in plant science. EPSO's mission is to improve the impact and visibility of plant science in Europe, to provide authoritative source of independent information on plant science including science advice to policy, and to promote training of plant scientists to meet the 21st century challenges in breeding, agriculture, horticulture, forestry, plant ecology and sectors related to plant science. <https://epsoweb.org> | EU Transparency Register Number 38511867304-09