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Contribution of Plant Science to the UN Sustainable Development Goals (SDGs)

In September 2015, the “[2030 Agenda for Sustainable Development](#)” was adopted by world leaders. The corresponding **17 Sustainable Development Goals (SDGs)** call for action to end poverty going hand-in-hand with building economic growth and job opportunities, addressing social needs including education, health, social protection while taking care of the climate and the environment. The SDGs and the **169 sub goals** provide a framework for research, education and implementation in many European countries, and the EU will also align their research portfolio to the SDGs.



Plant Sciences play an important role in many SDGs: plants provide the basis for food security (SDG “Zero Hunger”) and healthy nutrition (SDG “Good Health and Well-Being”). They are key for sustainable use of water (SDG “Clean Water and Sanitation”), bioenergy (SDG “Affordable and Clean Energy”) and will play an important role for reducing wasteful consumption (SDG “Responsible Consumption and Production”). Plant sciences will obviously be key to reduce climate change and to adapt plants to future environmental conditions (SDG “Climate Action”) and obviously for conserving and using biodiversity (SDG “Life On Land” and SDG “Life Below Water”). In all the other SDGs that require systemic approaches, plants and agricultural systems will have to be improved, because they are the basis for value creation in developing countries (SDG “No Poverty”) and raw materials for bioeconomy applications for industry (SDG “Industry Innovation”). Providing knowledge about agriculture (SDG “Quality Education”) will also contribute to gender equality (SDGs 5) and Sustainable Cities and Communities (SDG 11).

EPSO will organize a **workshop from 24th to 25th April 2018 in Barcelona, Spain** for its members to specify plant science contributions in more detail. We will discuss ways to embed plant sciences into the UN targets as well as into the circularity concept, which will be important in European research strategies in forthcoming years. The outcome of the workshop will be a report for EPSO members and for policy makers at the UN, European and national level (national agencies / ministries etc.). The workshop and the report aim to prepare plant scientists in Europe for these important future frameworks at European and national levels.

Contact: [Ulrich Schurr](#), Jülich (DE)

EPSO advises on science policy: European Research and Innovation strategy, Framework Programme 9 (FP9) and Agricultural technologies

EPSO and its members continue their priority work on science advice to policy in three main areas: Suggesting areas for improvement towards Framework Programme 9 (FP9); Providing input to the Horizon 2020 Societal Challenge 2 (Bioeconomy) strategy and themes towards the Work Programmes 2019-20; as well as advising at European and national level on New Breeding Technologies.

The European Commission (EC) is discussing with the Member States the **Multiannual Financial Framework post 2020** which includes the budgets for the main EU



programmes such as Common Agricultural Policy, Structural Funds, Defence, and Research and Innovation. To this end, the EC runs several public consultations the most important for scientists being the “EU funds in

the area of investment, research and innovation, SMEs and single market”. EPSO and several of its members submitted [EPSO input](#) on 22.2.2018 highlighting Research and Innovation across the EU as top priority for the EU funds post 2020 to bring European scientists and societies closer together to help build an inclusive, collaborative Europe and world and help achieving the UN Sustainable Development Goals.

As second step, the EC is developing its proposal for the next **Framework Programme for Research and Innovation (FP9)** to start in 2021. EPSO published its [Position on the next EU Framework Programme for Research and Innovation, FP9](#) on 19.9.2017, welcoming the continued inclusion of the successful Excellent Science pillar in FP9, and strongly suggesting for the Global Challenges pillar with a mission-based approach to close the research and innovation cycle through increasing support for collaborative basic research, to encourage increased levels of trans-disciplinarity and to emphasise the importance of plant science in meeting the UN Sustainable Development Goals. EPSO is working on an Annex to the position elaborating on the contributions of plant science to the UN SDGs, which will be the basis for the EPSO workshop on the theme in April 2018 (*see editorial*).



On 22.2.2018 the EC published the Report of Mariana Mazzucato on [‘Mission-Oriented Research and Innovation in the European Union – A problem solving approach to fuel innovation-led growth’](#) upon request of Commissioner Moedas. The report provides strategic recommendations on missions and how they can be structured in FP9. EPSO submitted three mission ideas: [1001 crops](#), [Planty Food](#) and [Green Bio-Factories](#).

In addition to these higher-level discussions, the EPSO Working Groups continue their work to provide advice on areas such as horticulture, forestry and on plants and microbiomes (*see following articles*).

As a transition towards FP9, the EC is refining further its strategy for the **last two years of Horizon 2020** through the respective Work Programmes, jointly with the Member States and stakeholders. EPSO mainly con-



tributes advice to Societal Challenge 2 (Food Security, sustainable agriculture and forestry, marine and maritime resources & the bioeconomy) as independent science organisation as well as jointly with industry and farmers as a member of the Plants for the Future European Technology Platform ([Plant ETP](#)).

EPSO itself and through the Plant ETP highlights in meetings with the European Commission and with the food and the animal sectors, contributions from plant science including cross-sectorial collaborations contributing to EU strategic areas such as Food 2030 (EC RTD) and the strategic approach to EU agricultural



research and innovation (EC AGRI). Along these lines EPSO participated as invited expert in three workshops of the International Bioeconomy Forum (IBF) on microbiomes led by the EC (Karin Metzloff & Angela Sessitsch), on forestry led by Canada (Elspeth MacRae & Ivan Scotti) and on ICT in the agri-food chain led by New Zealand (Karin Metzloff). Odd-Arne Rognli, Ian Donnison and Karin Metzloff participated on behalf of EPSO in the first workshop between the plant and the animal sector European Technology Platforms. The 2nd workshop will be held on 30.5.2018.



Contributions from plant science and breeding will be discussed in the 4th workshop of Plant ETP with the European Parliament on 23 May 2018. In the series “Sustainable growth: unlocking the potential of plants”, the theme will be “Plants for human health”.

EPSO provides **advice to national funders in the frame of ERA-Networks** as well. EPSO is official observer in two ERA-Nets: on Molecular Plant Sciences ([ERA-CAPS](#)), which announced the projects granted under its 3rd and self-sustained call, and on Sustainable Crop production ([SusCrop](#)), the new COFUND ERA-Net that started on 1.1.2018 and had its first call open with a pre-proposal deadline of 4.4.2018.



EP SO Activities

Beyond this, EP SO provides its members information on other relevant ERA-Nets, such as on agriculture with developing countries ([LEAP-AGRI](#)) with a call last year and on forestry ([ForestValue](#)) which had a pre-proposal deadline on 23.1.2018.

In addition, EP SO continues science advice to policy on **Agricultural Technologies**, including New Breeding Technologies (NBTs). EP SO published a [First reaction on the Advocate General's Opinion regarding mutagenesis and the Genetically Modified Organisms Directive](#), 18.1.2018, welcoming this as an important step in clarifying the GMO directive.

EP SO awaits the decision of the Court of Justice of the EU foreseen for 2018. On 27.2.2018, EP SO submitted to the Convention on Biological Diversity (CBD) [comments on the Report of the Ad Hoc Technical Expert Group on Synthetic Biology](#).

At the Agricultural Technologies Working Group Meeting in Zurich on 8 May EP SO members will discuss next actions on the NBTs, including meetings with the European Commission and a workshop on NBT intellectual property rights, as well as on the Nagoya protocol.

Contact us to get involved and collaborate with EP SO on science advice to policy.



Contact: [Karin Metzloff](#)

EP SO General Meeting and Plant Biology Europe 2018 Conference in Copenhagen

The EP SO Representatives will meet for the **General Meeting in Copenhagen 16-17.6.2018** to discuss and decide priorities, strategy and main actions for 2018-19 and beyond. They will look at the EP SO FP9 position and the outcome of the EP SO workshop on UN Sustainable Development Goals (SDGs) to discuss and finalise the report on possible contributions from plant science to the SDGs and agree on actions at European as well as national and multi-national levels. They will discuss actions of the EP SO Working Groups and in parallel groups they will generate new ideas how they can implement "We are EP SO" as well in their country / region.

The General Meeting will be followed by the [Plant Biology Europe 2018 Conference](#) in **Copenhagen 18-21.6.2018**, the joint conference of EP SO and FESPB.



The conference will discuss the following themes: Genome-based breeding – new breeding technologies; Niche crops; Phenotyping; Photosynthetic diversity – resource use efficiency and traits; Genome evolution – computational advances, epigenetics; Plants and microbiomes; Seeds for the future – seed and nutrition;

Natural products; Environmental resilience – global change, abiotic stress; Open science – science policy panel; Science communication.

To encourage the development of ideas and imaginative thinking in the plant sciences, EP SO initiated the **EP SO Young Plant Scientist Award** in 2016.

EP SO has the pleasure to announce the two winners of the second award, [YPSA 2018](#): Shumei WANG was selected on fundamental plant research and Andreas CARSTEN-SEN on applied plant research.

Shumei and Andreas will have the opportunity to present their research during a session of the Plant Biology Europe 2018 conference. In addition, each awardee will receive 200 €, the Local organizing committee will cover their registration and EP SO their travel to the meeting.



Contact: [Karin Metzloff](#), [Solveig Krogh Christiansen](#)

Career Opportunities

PhD student positions, postdoctoral positions, assistants and associate professors, senior lecturers, bioinformaticians and many other career opportunities in plant science are currently available on the EP SO website.

For more information on these positions visit <http://www.epsoweb.org/careers/jobs>.

You can also send your job announcements to [EP SO](#). This service is free for the members of EP SO. For non-members a small fee shall apply.

Plant Science Jobs

Members' News

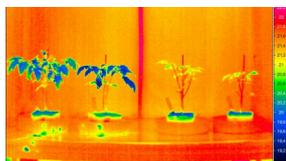
Stress-tolerant and eco-friendly tomatoes by TOMRES

In the [Horizon 2020 project TOMRES](#) - *A novel and integrated approach to increase multiple and combined stress tolerance in plants using tomato as a model* - coordinated by the [University of Torino](#), experts and researchers from 25 partner institutions in 10 European countries work together with farmers on improving tomato performance under resource

TOMRES

-saving conditions. The TOMRES team will evaluate a crop-based solution with the focus on improved water (WUE) and nutrient use efficiencies (NUE) of novel tomato genotypes in field and greenhouse trials, while a wide range of different key aspects of plants stress responses will be targeted.

With the overall goal of a balanced fruit yield and quality, the impact of water and nutrient stress on the complex below ground processes will be analyzed to identify resilience traits. Stress-induced plant responses will be dissected in molecular approaches to identify associated genes and genetic markers. The complex datasets obtained from different kinds of experiments (genotype x environment x crop management) will be used to establish a Decision Support System (DSS) to support demonstration experiments and planning in first steps.



Scientific outcomes will be shared with farmers, policymakers, scientists as well as with the general audience. The TOMRES outcomes will support breeders and growers in the decision process of plant selection, provide measures to strengthen sustainability goals in agricultural production and contribute to providing consumers with healthy fruits. ESPO is partner in the project coordinating the Stakeholder Group and supporting communication.

Contact: [Andrea Schubert](#), UNITO (IT)
[Simone Schmittgen](#), Uni Bonn (DE)

CHICory as a multipurpose crop for dietary fibre and medicinal terpenes

The [CHIC project](#) is a Horizon 2020, €7.3 million funding programme for the **development and application of New Plant Breeding Techniques (NPBTs)** for chicory. The consortium of 17 participants includes SMEs, an industrial partner, NGOs and research institutes from 11 European countries and one from New Zealand.

Root chicory (*Cichorium intybus* L.) is currently used for the commercial production of inulin. The CHIC project aims to develop chicory varieties that can be used to produce dietary fibre with enhanced prebiotic effects to promote gut health, as well as for the extraction of other health-related compounds such as terpenes, as potential lead molecules for drug development.

By developing and implementing a set of NPBTs, CHIC will adapt the biosynthesis and architecture of chicory root, while the safety, environmental, regulatory, socio-economic and broader societal issues associated with them will be evaluated.



CHIC will strive to ensure responsible innovation and to raise public awareness by involving stakeholders and considering their needs and concerns in

all phases of the project. ESPO participates in the project coordinating the Stakeholder Advisory Group (SAG) and helping disseminate the project's outcome.

Contact: [Dirk Bosch](#), WUR (NL)
[Macarena Sanz](#), IDC Consortium (ES)

These projects have received funding from the EU Horizon 2020 research & innovation programme.



EP SO Workshop

Contributions of Plant Science to the UN SDGs:

24-25 April, Barcelona

Contact: [Ulrich Schurr](#)



EP SO Working Group

Agricultural Technology:

8 May, Zurich

Contact: [Frank Hartung](#)



EP SO General Meeting

16-17 June, Copenhagen



Plant Biology Europe conference:

18-21 June, Copenhagen

Contact: [Solveig Krogh Christiansen](#)

