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DRAFT REPORT

on Technological solutions to sustainable agriculture in the EU
(2015/2225(INI))

Committee on Agriculture and Rural Development

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MOTION FOR A EUROPEAN PARLIAMENT RESOLUTION

on Technological solutions to sustainable agriculture in the EU (2015/2225(INI))

The European Parliament,

- having regard to Council Decision 2013/743/EU of 3 December 2013 establishing the specific programme implementing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020) and repealing Decisions 2006/971/EC, 2006/972/EC, 2006/973/EC, 2006/974/EC and 2006/975/EC¹,
- having regard to Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020) and repealing Decision No 1982/2006/EC²,
- having regard to Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC³,
- having regard to Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides⁴,
- having regard to Regulation (EU) No 233/2014 of the European Parliament and of the Council of 11 March 2014 establishing a financing instrument for development cooperation for the period 2014-2020⁵,
- having regard to Council Regulation (EC) No 870/2004 of 24 April 2004 establishing a Community programme on the conservation, characterisation, collection and utilisation of genetic resources in agriculture and repealing Regulation (EC) No 1467/94⁶ and to the Commission report of 28 November 2013 on ‘Agricultural Genetic Resources – from conservation to sustainable use’ (COM(2013)0838),
- having regard to Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed⁷,
- having regard to the Memorandum of Understanding of 14 July 2014 between the European Commission and the European Investment Bank for cooperation in agriculture and rural development in 2014-2020,
- having regard to its resolution of 11 March 2014 on the future of Europe’s

¹ OJ L 347, 20.12.2013, p. 965.

² OJ L 347, 20.12.2013, p. 104.

³ OJ L 309, 24.11.2009, p. 1.

⁴ OJ L 309, 24.11.2009, p. 71.

⁵ OJ L 77, 15.3.2014, p. 44.

⁶ OJ L 162, 30.4.2004, p. 18.

⁷ OJ L 268, 18.10.2003, p. 1.

horticulture sector – strategies for growth¹,

- having regard to the 2014 study by Policy Department B: Structural and cohesion policies – Agriculture and rural development, entitled ‘Precision agriculture: An opportunity for EU farmers – potential support with the CAP 2014-2020’,
 - having regard to the Commission communication of 29 February 2012 on the European Innovation Partnership ‘Agricultural Productivity and Sustainability’ (COM(2012)0079),
 - having regard to the Commission communication of 13 February 2012 entitled ‘Innovating for Sustainable Growth: A Bioeconomy for Europe’ (COM(2012)0060),
 - having regard to the Commission decision of 16 October 2015 on the setting up of the High Level Group of Scientific Advisors (C(2015)6946),
 - having regard to the Commission communication of 19 May 2015 entitled ‘Better regulation for better results – An EU agenda’ (COM(2015)0215),
 - having regard to Rule 52 of its Rules of Procedure,
 - having regard to the report of the Committee on Agriculture and Rural Development (A8-0000/2015),
- A. whereas the global population is expected to reach 9.6 billion by 2050, meaning there will be 2.4 billion extra people to feed;
- B. whereas global food production must increase by 60-110 % to meet this demand;
- C. whereas there is a pressing demand to produce more, as well as safe and nutritious, food for EU and global citizens;
- D. whereas agriculture accounts for 70 % of the world’s fresh water use, and water availability is already a major limitation on agricultural production in some regions of the EU and globally;
- E. whereas nitrogen fertilisers drive high yields but their manufacture accounts for about 50 % of the fossil fuel energy consumed by agricultural production systems;
- F. whereas global energy demand is predicted to rise by 40 % by 2030;
- G. whereas up to 40 % of global crop yields are lost to plant pests and diseases each year and this percentage is expected to increase significantly in the years ahead;
- H. whereas the EU’s genetic crop potential is not being consistently realised on Europe’s farms, where yields have plateaued in recent years;
- I. whereas closing the ‘yield gap’ poses a particular problem for the sustainable

¹ Texts adopted, P7_TA(2014)0205.

agriculture research agenda;

- J. whereas precision farming involves the use of automation and other technologies to improve the precision and efficiency of key agricultural management practices, using systems-based approaches to collect and analyse data and optimise interactions between the weather, soil, water and crops, and is ultimately designed to lower pesticide, fertiliser and water usage whilst improving soil fertility and optimising yields;
- K. whereas the approvals process, including the criteria for defining active substances, is becoming increasingly challenging for EU agriculture;
- L. whereas short-term cycles in policy and research funding priorities can be detrimental to skills, infrastructure and innovation in agriculture;

Precision Farming (PF)

- 1. Considers PF to be essential for achieving sustainable agriculture in the EU but recognises the constraints for its widespread adoption, including the reliability and manageability of this technology and its adaptability to smaller and irregular farmland areas;
- 2. Highlights the particular need for the innovation process in PF to solve the problem of 'high cost' in the development and use of some PF technologies and for farmers to be actively involved in the development of these technologies to ensure clear benefits at farm level;
- 3. Calls on industry, the Commission and the Member States to work in partnership to improve the performance and adaptability of robotic and other PF techniques in order to increase demand and investment by farmers;
- 4. Welcomes the inclusion of PF robotics in the newly published Horizon 2020 work programme for 2016-2017 but regrets that proposals under this call do not require a multi-actor approach and thus will not access innovative approaches developed by farmers;

Big data and informatics

- 5. Emphasises that the collation and analysis of large integrated data sets has the potential to drive innovation in agriculture and is particularly useful in addressing and developing an efficient food-chain that will benefit farmers, the economy and consumers;

Genetic diversity

- 6. Is of the view that the loss of genetic diversity over the past century threatens food/feed security and undermines EU policies on sustainable agriculture, biodiversity protection and adaptation strategies under climate change; considers all plant and animal varieties, including landraces and their wild relatives, as essential for maintaining genetic diversity, breeding programmes and the production of nutritious and sufficient food;
- 7. Stresses the need for greater dialogue between genetic banks and end-users in order to build resilience and support for sustainable food production throughout Europe;

8. Highlights the previous support from DG Agriculture and Rural Development (AGRI) and DG Research and Innovation (RTD) for genetic resource conservation activities, e.g. the European Native Seed Conservation Network (ENSCONET), but calls for successor programmes to continue the support for crop and livestock genetic conservation activities in order not to lose the significant EU dialogue and momentum gained;
9. Recognises the need to use germplasm collections to identify and characterise traits for resource use efficiency, pest and disease resistance and other attributes conferring improved quality and resilience; considers that this requires greater emphasis to be placed on phenotyping, which is a particular bottleneck for many crops;
10. Recognises the necessity of maintaining and using genetic resources for long-term food security and to broaden the genetic base of modern plant and animal breeding programmes; supports the concept of access and benefit sharing but urges pragmatic and enabling implementation of Regulation (EU) No 511/2014 and Implementing Regulation (EU) 2015/1866 so that breeders are not deterred by complexity and cost from using wild material to introduce new traits such as pest and disease resistance, nutritional quality and environmental resilience;

Precision breeding

11. Supports the need for continuous progress in plant and animal breeding to increase not only the range of pest- and disease-resistant traits in crops, but also the range of food raw materials with nutritional and health-beneficial characteristics on the market; recognises the importance of marker-assisted selection (MAS) and SMART breeding, which are now well-integrated into many breeding programmes, but also the potential offered by precision breeding for crop improvement, such as the use of zinc finger nucleases (ZFNs) and CRISPR in genome editing, oligonucleotide-directed mutagenesis (ODM) and the use of CMS hybrids in protoplast fusion or tissue culture based methods;
12. Emphasises that it is crucial not to hamper the application of high-precision breeding techniques – without scientific reason – by subjecting them to unnecessary regulatory oversight;
13. Considers it timely for the Commission to publish the final report of the ‘New Techniques’ working group and to use its scientific findings as the basis for clarifying the legal status of the breeding techniques currently under scrutiny;
14. Encourages open and transparent dialogue among all stakeholders and the public for the responsible development of high-precision, innovative solutions for breeding programmes;

Plant Protection Products (PPPs)

15. Stresses the urgent need to review the implementation of the regulatory framework for PPPs and to develop a coherent, efficient, predictable, risk-based and scientifically robust approvals system;

16. Welcomes the 2016 Commission Work Programme REFIT initiatives which commit the EU to carrying out an evaluation of Regulation (EC) No 1107/2009 and Regulation (EC) No 396/2005;
17. Calls on the Commission to include in its report to Parliament and the Council options for amending and improving the current legislation, and in particular on the functioning of mutual recognition of authorisations and the zonal evaluations process;
18. Highlights the importance of assessing the benefits of active substances in supporting sustainable agriculture as well as the risk and hazards associated with the use of products;
19. Calls on DG Health and Food Safety (SANTE) to establish clear criteria for defining low-risk active substances for the development and use of low-risk pesticides while considering the number of existing substances that could also qualify as low-risk;
20. Takes the view that low-risk substances should be given provisional approval for use and priority for evaluation by the rapporteur Member States and the European Food Safety Authority (EFSA) to help meet the aims of Directive 2009/128/EC regarding the sustainable use of pesticides, especially for product use on minor and speciality crops;
21. Notes that a faster approvals process would increase the availability of low-risk pesticides on the market, stimulate industry research into the development of new low-risk substances and enable farmers to switch more rapidly to sustainable PPPs;

Skills development and knowledge transfer

22. Recognises that the development of agri-related technologies requires a multitude of skills sets that are specialist as well as transdisciplinary in approach – these include, but are not limited to, general plant, animal and environmental science, physiology and engineering;
23. Regrets the increasing skill shortages in many of these professions and calls on the Member States to work in partnership with industry and other relevant stakeholders in the design of their next Rural Development Programmes to identify opportunities to support skills development and knowledge transfer in these areas;
24. Calls on the agricultural technologies sector to improve coordination and integration of on-farm demonstrations and use of demonstration and monitor farms to share best practice;

Research and funding priorities

25. Recognises the long-term challenges associated with sustainable agriculture and calls on the Commission and the Member States to develop a long-term investment plan, with continuity of funding, for basic and applied research;
26. Welcomes the progress made in applied research in recent years, but calls for greater efforts to involve farmers and other users of agricultural technologies and products; notes that in Member States where public-private partnerships are promoted there has

- been a greater shift towards applied research and a higher involvement of end-users;
27. Considers it essential for the Commission and the Member States to develop projects which focus exclusively on the development of more resource-efficient crop varieties, especially given the increasing scarcity of water availability and certain key components of fertilisers such as phosphate;
 28. Notes that throughout much of the EU, centres for education, training and innovation in agriculture have declined or do not adequately cater for transdisciplinary approaches in emerging fields such as agricultural engineering;
 29. Encourages the Commission and the Member States to develop Trans-European Centres for Agricultural Innovation that would deliver much needed progress towards food security and sustainability;
 30. Calls on the Member States to make better use of the financial instruments (FI) created under the joint EC-EIB Memorandum of Understanding in respect of agriculture and rural development for the period 2014-2020;
 31. Emphasises the added value associated with these instruments, especially in terms of leverage effects and loan guarantees aimed at boosting the implementation of the sustainable agriculture and forestry research agenda, including societal challenge 2 of Horizon 2020; cites, in particular, their usefulness for reducing the investment needs and risks for farmers wishing to adopt expensive PF technology and methods;

Keeping Europe at the centre of scientific development and innovation

32. Notes that rural areas, and in particular agriculture, are most exposed to actual and potential climate change; recognises that agriculture must be allowed to adapt to meet changing circumstances using all available technological solutions;
33. Considers it essential that emerging technologies are not stifled by unnecessary and burdensome regulation before they have a chance to deliver benefits;
34. Notes in particular the high cost, long timescales and commercial uncertainty of bringing new technologies and products to market under current EU regulations;
35. Calls on the Commission to improve its regulatory framework in line with the principles of Better Regulation to ensure timely, efficient and effective decision-making procedures;
36. Calls on the Commission to use its new Scientific Advice Mechanism (SAM) to design a regulatory framework which places greater emphasis on risk-based and scientific evidence when determining the balance between benefits and risks in the adoption of new technologies, products and practices;
37. Notes broad support for the adoption of the Innovation Principle, which would require EU legislative proposals to be fully assessed in terms of their impact on innovation;

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38. Instructs its President to forward this resolution to the Council and the Commission.

EXPLANATORY STATEMENT

As the global population rises, satisfying the demand for healthy food and optimal nutrition is one of the biggest challenges facing the world. Food demand is expected to increase by 70% by 2050. Shrinking land availability, environmental loss and degradation, shortages of water, increased energy demand, and the emergence of new pests and diseases are placing considerable pressure on our natural environment. The result is that farmers are finding it increasingly challenging to produce food in a sustainable way.

Technological innovation is a vital part of the solution. Agricultural technologies, in particular, have the potential to make farming more productive and more sustainable. Farmers recognise and appreciate this. In fact, many see technology - genetic, mechanical and increasingly digital- as the only realistic way of meeting the present challenges.

The EU should become a world leader in agricultural technology, innovation and sustainability. This report is about ensuring that Europe has a vibrant agricultural sector developing a wide range of innovations and technologies across all farming types whether conventional, organic or otherwise. We must ensure that the benefits of technological innovation are available to all our farmers. Finding solutions that work on a small scale in rural communities is equally important to addressing the challenges facing many of our large-scale farmers.

The need to improve productivity, competitiveness and environmental performance is not just about economics. With about 805 million people in the world suffering from chronic malnourishment and almost all of these living in developing countries, Europe surely has a moral obligation to optimise agricultural output and to increase production whilst doing this in the most sustainable way.

Whilst global concern over food and environmental security has brought a new focus to public sector R&D in recent years, European agriculture continues to trail behind many of its international competitors. Only sustained and prioritised investment in the research base will reverse this trend.

The starting point has to be targeted investment in applied and translational research. Not enough research is commercialised, so farmers are unable to take advantage of the opportunities that new technology and innovation provides. Similarly, where agricultural technologies are being developed, not all of these technologies are meeting farmers' needs, either because the technology has yet to be optimised or adapted to local farming conditions, or because it is capital intensive and lies out of reach for the small farmer.

Whilst farmers and scientists play different roles in the innovation process, improved outcomes can only be achieved with both parties working more closely together. Farmers are the end-users of production and management technologies and the actors in the supply chain developing these technologies must tap into their practical experiences. Similarly, where farmers encounter a particular challenge in the field, they should be able to directly access scientists and make use of basic research to help find solutions.

The EU and the Member States, academia and industry including breeders, the agro-

chemicals sector, farmers and food manufactures, must all work together to improve the translation of research into practice, from lab to farm to fork. This will allow Europe to unlock a new phase in agricultural innovation.

Recent investments and new funding priorities at Member State and EU level offer encouraging signs. The Horizon 2020 Framework Programme is the EU's biggest EU Research and Innovation programme ever, with some 80 billion euros of funding available over 7 years.

New investment is also taking place in the Member States. In the UK for example, the British Government is investing in a new 'Agri-Tech' Strategy, which aims to make the UK a world leader in agricultural technology, innovation and sustainability. This strategy is now underway and includes a £70 million investment in an Agri-Tech Catalyst to help accelerate the commercialisation of agricultural research, and a further £90 million to establish Centres for Agricultural Innovation to support advances in sustainable agriculture.

Key to making all this happen will be to secure the appropriate skills, and to attract the right talent and expertise into the industry. The research skills needed to support the sector are rapidly changing and there is now a real risk of higher skills shortages in agronomy and plant pathology as many of the experienced professionals in these niche areas are nearing retirement. Throughout much of Europe, centres for education, training and innovation have declined and need to be revitalised, particularly in the emerging field of agricultural engineering. In short, the EU and the Member States must strive to make the Europe's agriculture sector more attractive to new entrants, either in farming, research or technology development. Furthermore, the Member States need to work more closely with industry to change the negative perceptions of the sector, as a low-skill, low-technology industry, so that agriculture can attract the skills required.

Creating a regulatory environment which is more innovation-friendly and ensuring that EU regulations do not act as barriers to innovation is also very important. Without a supportive regulatory regime, European industry will relocate to more dynamic markets. All too often, EU legislation places restrictions on products and technologies without adequate evidence of risk. EU legislation must be evidence-based in order to encourage innovation.

Most farmers and landowners are small businesses and minimising the administrative burden on these SMEs is vital. Margins in the agricultural sector are small and extra costs threaten the survival of some small farming operations.

Finally, the long term challenges of sustainable agriculture should be met with a joined-up approach from the Commission and Member States to ensure support for technological innovation, a regulatory framework that is risk based, underpinned by scientific evidence, continuity of basic and applied research and the development of agri-related skills.