



TEXTS ADOPTED

Provisional edition

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Technological solutions for sustainable agriculture

European Parliament resolution of 7 June 2016 on technological solutions for sustainable agriculture in the EU (2015/2225(INI))

The European Parliament,

- having regard to the Treaty on the Functioning of the European Union (TFEU), in particular Articles 11, 114(3), 168(1) and 191 thereof,
- 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 (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005³,
- 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/EEC⁴,
- 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 pesticides⁵,

¹ OJ L 347, 20.12.2013, p. 965.

² OJ L 347, 20.12.2013, p. 104.

³ OJ L 347, 20.12.2013, p. 487.

⁴ OJ L 309, 24.11.2009, p. 1.

⁵ OJ L 309, 24.11.2009, p. 71.

- 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 2014-2020¹,
- 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 1467/94², and to the Commission report of 28 November 2013 entitled ‘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 feed³,
- 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 horticulture sector – strategies for growth⁴,
- 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 2013 study by Science and Technology Options Assessment (STOA) entitled ‘Technology options for feeding 10 billion people’;
- 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 its resolution of 17 December 2015 on patents and plant breeders’ rights⁵;
- having regard to Rule 52 of its Rules of Procedure,

¹ OJ L 77, 15.3.2014, p. 44.

² OJ L 162, 30.4.2004, p. 18.

³ OJ L 268, 18.10.2003, p. 1.

⁴ Texts adopted, P7_TA(2014)0205.

⁵ Texts adopted, P8_TA(2015)0473.

- having regard to the report of the Committee on Agriculture and Rural Development (A8-0174/2016),
- A. whereas our societies are facing multiple challenges involving agriculture and must play their part, and whereas the global population is estimated to reach 9,6 billion by 2050, meaning there will be around 2.4 billion more people than today;
- B. Whereas on average at least one third of food produced is wasted, and nearly half in some sectors, and whereas one of the most effective ways of meeting this anticipated demand, while not depleting scarce resources, is by harnessing technological solutions to increase production, improve the means of distribution and tackle food waste;
- C. whereas there is a pressing demand to produce more food which is safe, healthy and nutritious for EU and global citizens in order to deal with malnutrition, obesity, cardiovascular disease, etc.; and whereas the EU's high food quality standards enjoy worldwide recognition;
- D. whereas there are many alternatives for land use which compete with farming, including urbanisation, industry, tourism and recreation;
- E. whereas agricultural raw materials offer prospects for growth in green chemistry;
- F. whereas making farming more sustainable is becoming an ever more important objective for operators, given the need to control costs in order to safeguard incomes, on the one hand, and to respond to the depletion and degradation of natural resources (soil, water, air and biodiversity) on the other; whereas agriculture accounts for 70 % of the world's fresh water use, and whereas water availability is already a major limitation on agricultural production in some regions of the EU and globally; whereas the use of drinking water in agriculture can be significantly reduced by the effective use of modern irrigation techniques and by growing crops suited to the local climate;
- G. whereas nitrogen fertilisers drive high yields, but their manufacture accounts for about 50 % of the fossil fuel energy consumed by agricultural production systems;
- H. whereas global energy demand is predicted to rise by 40 % by 2030, and whereas serious thought must now be given to meeting this demand through increased energy efficiency and a secure energy mix that includes renewables; whereas research has shown that shorter agro-food chains can lead to reduced energy inputs with cost and environmental benefits;
- I. whereas up to 40 % of global crop yields are lost to plant pests and diseases each year, and whereas this percentage is expected to increase significantly in the years ahead; whereas steps must be taken to prevent this figure from increasing further, including through systemic approaches and adaption of existing production models, and whereas climate change is contributing to this loss and leading to the emergence of ecologically novel plant pests and diseases;
- J. whereas global warming is generating extreme weather events that result in droughts or floods that cause substantial damage to the population groups affected and pose severe risks to their food security; and whereas climate resilience in biologically and structurally diverse agro-ecosystems can help to reduce this risk;

- K. whereas the EU's genetic crop potential is not being consistently realised on Europe's farms, where yields have plateaued in recent years;
- L. whereas the diversity and quality of plant genetic resources play a crucial role in agricultural resilience and productivity, thus being a determining factor for long-term farming and food security;
- M. whereas closing the 'yield gap' poses a particular problem for the sustainable agriculture research agenda;
- N. whereas precision farming involves the use of automation and other technologies to improve the precision and efficiency of key agricultural management practices, by using system-based approaches to collect and analyse data and optimise interactions between the weather, soil, water and crops, and whereas precision farming is ultimately designed to lower pesticide, fertiliser and water use while improving soil fertility and optimising yields;
- O. whereas soil science shows us that healthy, living soils nurture and protect crops via beneficial species that defend against pathogens and pests and also provide plant crops with nutrients and water in exchange for sugars in plant root exudates; whereas agricultural practices may impact negatively on the biological, chemical and physical quality of soils, with consequences including soil erosion, degradation of soil structures and loss of fertility;
- P. whereas the benefits of innovative technologies should not be limited to one type of agricultural practice and need to be applicable to all farming types, whether conventional or organic, livestock or arable, or small or large-scale;
- Q. whereas the number of pesticide active substances was reduced by 70 % between 1993 and 2009, while the presence of pest outbreaks has increased in the European Union; whereas the approvals process, including the criteria for defining active substances and for new substances constituting an alternative to plant protection products, is becoming increasingly challenging for EU agriculture and its citizens; whereas there is a need to urgently address the lack of active substances for minor uses;
- R. whereas insufficient crop protection solutions for specialty crops endangers the quality, diversity and sustainable production of food crops in the EU, which has a direct impact that has been estimated to amount to more than EUR 1 billion, including production loss and additional costs for farmers;
- S. whereas short-term cycles in policy and research funding priorities can be detrimental to skills, infrastructure and innovation in agriculture, and whereas priority should be given to the efficient transfer of research findings from science to farmers, and to research programmes focused on improving the sustainability of agriculture, reducing production costs and increasing competitiveness;

Precision Farming (PF)

1. Notes that the agriculture sector has always relied on new farm business models and practices that include new techniques and production methods to increase outputs and adapt to new and changing circumstances; emphasises that ecosystem services, such as nutrient cycling, are of central importance to agriculture, and that some functions, such

as carbon sequestration, go beyond food production;

2. Is convinced that innovation has the potential to contribute to achieving sustainable agriculture in the EU, and considers PF technologies to be particularly important for maintaining progress, but recognises the limits to its widespread adoption, including the reliability, manageability and limited knowledge of this technology and its adaptability to all farm types and sizes;
3. Takes the view that the principles underpinning PF can generate significant benefits for the environment, increase farmers' incomes, rationalise the use of agricultural machinery and significantly increase resource efficiency, including use of water for irrigation; therefore encourages the Commission to promote policies to stimulate the development and uptake of precision farming technologies for all farm types, irrespective of their size and production, whether crop and/or animal farming;
4. 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 and the whole supply chain to be actively involved in the development of these technologies in order to ensure clear benefits at farm level and to help farms become more resilient;
5. Is convinced that economic development and sustainable production are not mutually exclusive and are achievable through innovation; stresses the need to support innovation in technology and governance by providing regulatory coherence, clarity and room for entrepreneurship, and urges the Commission to ensure that innovation is explicitly taken into account in forthcoming reviews and reforms of relevant legislation; highlights the fact that European agriculture is able to produce high-quality and high-added-value products together with profitable, knowledge-based solutions in order to feed a growing and more demanding world population;
6. 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 for research funding to be used effectively in the interests of agriculture and horticulture;
7. Further calls on industry to exploit opportunities arising from innovation to develop PF capabilities which are accessible to all, thus empowering people with disabilities, promoting gender equality and broadening the skills base and employment opportunities in rural communities;
8. 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, which may mean that farmers are excluded from innovative developments; emphasises that PF can reduce resource use by at least 15 %; encourages the uptake of precision agriculture that provides new whole-farm management approaches, such as GPS/GNSS-technology-driven machinery and remotely piloted aircraft systems (RPASs);

Big data and informatics

9. Points out that the farming industry, like all other sectors of the economy, is undergoing a process of change; emphasises that modern farming was made possible only by the

acceptance of scientific and technological progress, and that digital advances likewise offer the possibility of further development in the farming sector;

10. 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 and sustainable food-chain that will benefit farmers, the economy, consumers and the environment; calls on the Commission and the Member States to remove the barriers to integrating complex and fragmented ICT systems, stimulating investment and covering training costs, and to make the necessary facilities more accessible to agriculture;
11. Welcomes the progress made by the European Space Agency (ESA) in developing PF; takes the view that the ESA's Sentinel 2B satellite, which is to be placed in orbit in late 2016, may give a clearer picture of the amount of land taken up by crops and forests, with the result that agricultural policies can be implemented more effectively, use of resources rationalised and harvesting periods optimised; calls on the Commission and the Member States to support the use of satellite-based systems;

Soil, water and nutrient management

12. Recognises soil degradation to be a major constraint in agricultural production, and calls for greater ambitions and efforts to improve soil and water management practices, particularly in light of climate change; welcomes the development of controlled traffic farming (CTF) technologies, which reduce soil damage caused by overworking of the land, and also welcomes recent efforts to integrate high-resolution remote sensing technologies into organic farming; encourages the Commission to quantify the environmental and production benefits of these new technologies and to ensure awareness, knowledge and technology transfer;
13. Calls for farmers to be included in the design, testing and dissemination of soil nutrient mapping technologies in order to help improve their effectiveness;
14. Regrets that the efficiency of nutrient use in the EU is very low, and stresses that action is needed to improve the efficiency of nitrogen (N), phosphorous (P) and potassium (K) use, in order to reduce their impact on the environment and improve food and energy production; calls for targeted research (and its applied use) to improve nutrient efficiency monitoring and the further optimisation of variable rate technologies;
15. Agrees that the development of new technologies and innovative agricultural practices could contribute significantly to reduced use of plant protection products, fertiliser and water, and also combat soil erosion;

Genetic diversity

16. 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 climate change mitigation strategies; believes that monoculture and a lack of crop rotation is a major factor in this loss; considers all plant varieties and animal species, including landraces, their wild and semi-wild relatives, and old and pioneer varieties to be essential for maintaining genetic diversity, breeding programmes and the production of sufficient, nutritious and healthy food;

17. Takes the view that EU regulation should enable farmers and breeders to make the best use of such genetic resources to safeguard biodiversity and innovation in developing new varieties; stresses that EU regulations should always aim not to undermine such innovative processes by putting an unnecessary administrative burden on breeders and farmers;
18. Stresses the need for greater dialogue between genetic banks, private and public plant research, breeders, end users and all other actors involved in the conservation and use of genetic resources, in order to build resilience and meet the challenges of sustainable farming throughout Europe;
19. Highlights the previous support from DG Agriculture and Rural Development (AGRI) and DG Research and Innovation (RTD) for genetic resource conservation activities, for example the European Native Seed Conservation Network (ENSCONET), but calls for successor programmes to continue the support for crop and livestock genetic conservation activities, especially the in-field use of genetic resources through on-farm measures;
20. Stresses the importance of opening up the conservation of genetic resources to a greater diversity of plant and animal species and for the research funding in this area to result in technological improvements for agriculture and horticulture;
21. Calls on the Commission to put forward proposals for the European strategy for the safeguarding of genetic diversity in agriculture provided for in Measure 10 of the EU Biodiversity Strategy for 2020;
22. Recognises the need to use germplasm collections responsibly in order 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;
23. Notes that the most effective way to maintain genetic diversity in agriculture is by using it in vivo; notes that of the three DUS criteria (distinctiveness, uniformity and stability) applied to official EU seed catalogues, uniformity and stability are not natural characteristics in genetically diverse plants; notes that adaptation to climate change is dependent upon high genetic variation; notes the increasingly concentrated seed markets and decreased variation per variety; encourages the role played by farm seed systems and exchanges in empowering farmers, and recognises participative breeding as a long tradition of innovation in rural communities;
24. Recognises the need to maintain and use genetic resources for long-term food security and to broaden the genetic base of modern plant and animal breeding programmes; recognises that organic farms face a shortage of new varieties that are resistant to pests and diseases and which could be cultivated without the use of plant protection products; supports the concept of access and benefit sharing, but urges implementation of the Nagoya Protocol, under Regulation (EU) No 511/2014, and Implementing Regulation (EU) 2015/1866, so that breeders are not deterred by the complexity and cost arising from using wild material to introduce new traits such as pest and disease resistance, nutritional quality and environmental resilience; notes that this should be done without disempowering rural communities that have stewarded species and bred varieties throughout the years;

25. Considers it essential to maintain and develop the performance of local breeds, given their ability to adapt to the characteristics of their native environment, and for farmers' rights to breed plants autonomously and to store and exchange seeds of different species and varieties to be respected, in order to ensure the genetic diversity of European agriculture;
26. Recognises the need to support suitable crop rotations that remain profitable for farmers; also highlights the need to maintain a range of suitable crop protection tools for a broad range of crops, in addition to genetic resources; stresses that, without such tools, the diversity of crops that can be produced profitably will be severely impacted;

Precision breeding

27. Supports the need for continuous progress in innovative breeding through the application of safe and proven techniques aimed at increasing 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;
28. Considers it important to ensure sustained support for development and use of future technological tools which may allow breeding to successfully address the societal challenges ahead;
9. Considers it timely for the Commission to publish the final report of the 'New Techniques' working group and to use its scientific findings as a basis for, inter alia, clarifying the legal status of the breeding techniques currently under scrutiny and to use sound legal analysis in its deliberations;
30. Encourages open and transparent dialogue among all stakeholders and the public on the responsible development of high-precision, innovative solutions for breeding programmes, including on its risks and benefits; notes that this will require efforts to raise awareness and understanding of new techniques among farmers and the general public; calls on the Commission to ensure that consumers and farmers are sufficiently educated in new and emerging breeding techniques so as to ensure that an open and informed public debate can take place;
31. Expresses concern at the recent decision of the Enlarged Board of Appeal of the European Patent Office (EPO) of 25 March 2015 in Cases G2/12 and G2/13;

Plant protection products (PPPs)

32. 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 assessment and approvals system; considers it important to reduce farmers dependence on pesticides as much as possible, noting that production of food and feed operates in a competitive, international environment; considers it important to develop PPPs which are cost-effective, safe to use and environment friendly;
33. 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; stresses that the REFIT process must not lead to the lowering of food safety and environmental protection standards;

34. 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;
35. Underlines the concern that the zonal authorisations system is not functioning, owing to the continued use of outdated national authorisation methodologies, and calls on the Commission to harmonise the approval system to ensure mutual recognition of products across the Member States in the zones identified in Regulation (EC) No 1107/2009;
36. Welcomes the latest Integrated Pest Management – European Research Area Network (IPM-ERANET) and the new coordination platform for ‘minor uses’, but considers that the platform could be better exploited to cover research and innovation with a view to addressing the lack of crop protection solutions for minor use and speciality crops;
37. Highlights the importance of transparently assessing the impacts of active substances with a view to ensuring sustainable agriculture in line with EU law, and of comprehensively evaluating the risk and hazards associated with the use of products, and recalls that the precautionary principle should be used when the degree of uncertainty is too high to ensure public health or good agricultural and environmental conditions;
38. 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 evolving scientific knowledge and ensuring that the objectives of health and environmental protection are met, and to ensure that safety data are present for the criteria applied for all potential low-risk substances;
39. Takes the view that low-risk substances, including non-chemical alternatives to PPPs such as biological controls, should be given priority for evaluation by the rapporteur Member States and the European Food Safety Authority (EFSA) in order to help meet the aims of Directive 2009/128/EC regarding integrated pest management and the sustainable use of pesticides, especially for product use on minor and speciality crops;
40. Stresses that farmers need to have a bigger toolbox at hand to protect their crops and to decide which measure will best protect their crops; therefore encourages wider use of various alternatives to traditional pesticides, including biopesticides, as a component of integrated pest management, and calls for more efforts to be made to develop more cost-effective alternatives by supporting field research into and more demonstration of non-chemical alternatives and low-risk measures and pesticides which are more environment friendly;
41. Notes that biological controls are methods of protecting crops based on the use of living organisms or natural substances and could reduce the use of traditional pesticides and contribute to better plant resilience;
42. Calls on the Commission to come forward with an action plan and to set up an expert group in order to work towards a more sustainable pest management system; highlights the potential of a pest management system that improves the interaction between plant breeding efforts, natural combat systems and pesticide use;
43. Regrets the slow progress of the Member States and the Commission in respectively

implementing and evaluating implementation of IPM and Directive 2009/128/EC;

Skill development and knowledge transfer

44. Recognises that the development of agri-related technologies requires a multitude of specialist skill sets and knowledge that are transdisciplinary in approach – these include, but are not limited to, general plant, animal and environmental science, physiology and engineering;
45. Regrets the increasing skill shortages in many of these professions, and calls on the Member States to work in partnership with industry, research institutions and other relevant stakeholders in the design of their next rural development programmes, including European Innovation Partnerships (EIPs), with a view to identifying opportunities to support skill development and knowledge transfer in these areas, including by means of training and apprenticeships for young farmers and new entrants;
46. Calls on the agricultural technologies sector to improve coordination and integration of on-farm demonstrations and use of demonstration and monitor farms with a view to sharing best practice at regional, national and European level, using currently available or new programmes, initiatives or resources;
47. Recognises the potential that precision farming and digital technology integration can have in making agriculture more attractive for young farmers and creating new opportunities for growth and employment in rural areas; believes that investing in the development of these technologies may foster generational change in farming;

Research and funding priorities

48. Recognises the long-term challenges associated with sustainable agriculture and horticulture, and calls on the Commission and the Member States to develop a long-term investment plan, assigning priority to a sectoral approach, with continuity of funding, for basic and applied research, and asks the Commission and the Member States to improve training for specialists in sustainable agriculture, and to ensure that expert consultation is available;
49. Considers that the plan should include cost-effective solutions and be applicable to small-scale producers, rural areas and outermost and mountainous regions; emphasises that farmers are the major stewards of the environment in Europe and need continued access to innovation and research, enabling them to produce food, feed and other products in a sustainable and more cost-effective way, while protecting the environment for future generations and enhancing biodiversity and ecosystem services;
50. Welcomes the progress made in applied research in recent years, but calls for greater efforts to guarantee knowledge transfer to end users and to involve farmers and other users of agricultural technologies and products, including small farms;
51. Calls for the European Innovation Partnership for competitive and sustainable agriculture, contained in the second pillar of the CAP, to be stepped up in order to create partnerships of innovative actors, including all farmers, and in particular small-scale farmers, further away from European decision-making centres;
52. Notes that, in Member States where public-private partnerships are used intelligently,

there has been a greater shift towards applied research and a higher involvement of end users;

53. Considers it essential for the Commission and the Member States to develop projects which focus on the development of more resource-efficient agricultural practices and crop varieties, including locally specialised varieties, aimed at the conservation and improvement of soil fertility and nutrient exchange, especially given the increasing scarcity of water availability and certain key components of fertilisers such as phosphate; calls on the Commission to prioritise investment in the circular economy and climate-smart farming practices, with adequate funding incentives for research and uptake by farmers; underlines that the merits of aquaponics, closed loop nutrient cycling, agro-ecology, including agroforestry, conservation agriculture and sustainable forest management, saporpel, short feed chains, pasture-based grazing and low-input production should be duly evaluated, divulged and incentivised;
54. Also considers it essential for the Commission and the Member States to develop innovative projects for producing non-food products (bio-economy, renewable energy, etc.) and services with a view to developing a more resource-efficient agriculture industry (better use of water, energy, food for crops and animals, etc.), and one which is more autonomous;
55. Notes that, throughout much of the EU, independent or publically-funded 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; recognises that in some Member States farmers' qualifications are still limited, which makes access to, and the application of, new technologies more difficult, and therefore calls on the Commission to draw up a European plan for investment in technical or higher-level agricultural training and education;
56. Welcomes the recently launched European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI), which aims to link research and practical farming, and calls on the Commission to play an active role in boosting coordination at national and cross-border level to promote an explicit innovation agenda linked to Horizon 2020 and to guarantee adequate knowledge transfer to end users;
57. Encourages the Commission and the Member States to do more to raise public awareness of the value of farming in the EU, and to develop trans-European centres for agricultural innovation that would demonstrate and enable appropriate access to innovative new technologies, sustainable agriculture, food security and sovereignty;
58. Stresses that the activities of these centres should enable access to new technologies not only for sustainable agriculture but also for sustainable rural development by working within communities, with rural SMEs, cooperatives and producer organisations; underlines that they should be transparent and open to the general public and farmers, and should have a trans-sector approach, fostering dialogue among sectors that may be impacted by innovation in different ways;
59. Urges the Commission to ensure that, alongside technological and scientific innovations, traditional techniques and farms can continue to flourish, given that these are an immense asset, being a source of cultural, rural, historical and tourism diversity, and provide a livelihood for numerous European small-scale farmers in a whole variety

of regions;

60. Calls on the Member States to make better use of the financial instruments created under the joint Memorandum of Understanding between the Commission and the European Investment Bank in respect of agriculture and rural development for the period 2014-2020;
61. 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

62. Notes that rural areas, including outermost and mountainous regions, are more exposed to actual and potential climate change, which makes them less attractive and more susceptible to aging populations and depopulation; recognises that agriculture must be allowed to adapt to meet changing circumstances using all available technological solutions to ensure that farmland is used more sustainably;
63. Notes that modern technologies in agriculture and a broader land use sector can help these sectors contribute fairly to global climate change mitigation efforts; in this context, highlights the need to broaden the definition of 'productive agriculture' and to fully support and respect those farming lands which provide public goods in climate mitigation and carbon sequestration, including agro-ecological farming;
64. Regards it as essential to preserve farmland in areas such as mountainous and peripheral areas in the Union, and backs all action to ensure that the mainly small-scale holdings there also have access to high technology tailored to their needs;
65. Considers it essential that reasonable EU regulation, oriented towards consumer safety and health and environmental protection, based on independent, peer-reviewed science, enables EU farm produce to be competitive and attractive on the internal and world markets, and calls for that principle to continue to hold good;
66. Notes in particular the high cost, long timescales and commercial and legal uncertainty of bringing new technologies and sustainable products to market under current EU regulations; notes that these facts are even more evident in the outer-most regions, remote rural areas, less favoured areas and mountainous areas;
67. Urges the Commission to utilise and enhance all the characteristics of the outer-most regions by carrying out pilot projects in the field of technological and scientific innovation aimed at reducing their natural disadvantages and, given their small scale, the difficulty of gaining access to and applying the latest scientific and technological developments;
68. Calls on the Commission to improve its regulatory framework in line with the principles of Better Regulation so as to ensure timely, efficient and effective decision-making procedures, which could contribute to technological development in the EU;
69. Calls on the Commission to use its new Scientific Advice Mechanism (SAM) to refine a

regulatory framework which places greater emphasis on risk-based and independent scientific evidence when assessing risks, hazards and benefits in the adoption or non-adoption of new technologies, products and practices;

70. 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;
71. Calls on the Commission to take more wide-ranging action in the field of scientific cooperation at international level, with a view, inter alia, to intensifying the exchange of information and identifying development opportunities;

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