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REPORT

on enhancing innovation and economic development in future European farm
management
(2015/2227(INI))

Committee on Agriculture and Rural Development

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MOTION FOR A EUROPEAN PARLIAMENT RESOLUTION

on enhancing innovation and economic development in future European farm management (2015/2227(INI))

The European Parliament,

- having regard to Regulation (EU) No 1307/2013 of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and repealing Council Regulation (EC) No 637/2008 and Council Regulation (EC) No 73/2009,
- having regard to Regulation (EU) No 1306/2013 of the European Parliament and of the Council of 17 December 2013 on the financing, management and monitoring of the common agricultural policy and repealing Council Regulations (EEC) No 352/78, (EC) No 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005 and (EC) No 485/2008,
- having regard to Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007,
- 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 1698/2005,
- having regard to the UN's International Assessment of Agricultural Knowledge, Science and Technology for Development of the FAO, GEF, UNDP, UNEP, UNESCO, the World Bank and WHO,
- having regard to the memorandum of understanding between the European Commission and the European Investment Bank (EIB) signed on 14 July 2014,
- having regard to its resolution of 8 March 2011 on the EU protein deficit: what solution for a long-standing problem?¹,
- having regard to the Council conclusions of 18 June 2012 on the European Innovation Partnership ‘Agricultural productivity and sustainability’ (2012/C193/01),
- having regard to its motion for a resolution of 17 December 2015 on patents and plant breeders’ rights²,
- having regard to Rule 52 of its Rules of Procedure,

¹ Texts adopted, P7_TA(2011)0084.

² Texts adopted, P8_TA(2015)0473.

- having regard to the report of the Committee on Agriculture and Rural Development and the opinion of the Committee on the Environment, Public Health and Food Safety (A8-0163/2016),
- A. whereas the UN’s Food and Agriculture Organisation (FAO) estimates that the expected rise in the world’s population to 9.1 billion by 2050 will in the business as usual scenario require a 60 % increase in food supply that should be safe and of high quality and a 24 % increase in crop yields in the developed countries by that date, whilst preserving resources for future generations and preventing food waste and losses, which currently account for over one third of global production; whereas the FAO also estimates that there will only be a 4.3% increase in arable land by 2050, which will require better management of natural resources to combat soil degradation among other issues;
- B. whereas land everywhere faces a drop-off in intrinsic productivity and fertility caused by land degradation, especially soil erosion, owing to the loss of ecosystem functions such as topsoil formation, humification, pollination, water retention and nutrient cycling; whereas there is a broad consensus that to resolve this and maintain and improve productivity, we need to increase delivery innovatively of such ecosystem functions in order to ensure resilience against climate change;
- C. whereas according to the UN, if the sustainable development goals (SDGs) are to be achieved, agricultural productivity will have to double by 2030, while simultaneously the agri-food sector will have to adapt to climate change and changing weather conditions, improve ecosystem and soil quality and minimise biodiversity loss; whereas, in order to achieve this, priority must be given to the use of microbiological preparations which increase soil life; whereas four out of the eight UN Millennium Development Goals (MDGs) are connected to agriculture;
- D. whereas population growth, higher average incomes and changing consumer behaviour will lead to revised dietary preferences, and will result in particular in higher demand for processed foods and animal proteins such as meat and dairy;
- E. whereas the quality of life of agricultural workers and of rural communities must be improved;
- F. whereas against the background of the numerous challenges and the growing number of rules farmers have to deal with, and the fact that agricultural technology resources have fallen and the rate of growth of irrigated land areas has slowed markedly, EU consumers have never spent as low a percentage of their income on food as they do now; whereas the current economic downturn has resulted in increased levels of poverty, often forcing EU consumers to seek assistance from food banks;
- G. whereas the FAO notes in its main publication ‘The State of Food and Agriculture’ that women make significant contributions to the rural economy in all regions and their roles vary from one region to another, even though they still have less access than men to the resources and opportunities they need in order to be more productive;
- H. whereas consumers are demanding food production with higher environmental, nutritional and health standards and values and of increasing quality, while at the same

time the agricultural sector needs to diversify and innovate to provide quality, safe and affordable food for all citizens and to ensure a decent and viable income for its producers;

- I. whereas farm production needs to increase and improve with less resources owing to pressure on natural resources and its associated effects on biodiversity, vulnerability of the environment, climate change and the scarcity of land, together with population growth and changing consumer behaviour; insists that innovative agriculture should provide a smaller ecological footprint and make optimal use of natural processes and ecosystem services including renewable energy and a greater consumption of local agri-food products;
- J. whereas, a more productive and resource-efficient model of agriculture that is better at optimising its products is key to addressing the challenges of sustainability for all farms, irrespective of size, and to making them better equipped to preserve natural resources and the environment;
- K. whereas the development of more sustainable models of agriculture intended not only to provide food for people but also to produce non-food goods and services represents significant potential for job creation in each region, not only in the food sector (human and animal) but also in the bio-economy, green chemistry, renewable energy and tourism sectors, etc.; whereas these are also very often jobs that cannot be relocated;
- L. whereas the EU is the biggest exporter of agricultural products worldwide, making the agri-food sector a key economic pillar of the Union, employing 47 million people in 15 million downstream enterprises in fields such as food processing, retail and services, and contributing to a positive trade balance of EUR 17 802 that represents 7.2% of the total value of EU exports;
- M. whereas the CAP's competitiveness and sustainability were key priorities of the 2013 CAP reform; whereas safeguarding secure food supplies by increasing sustainable agriculture productivity and ensuring reasonable and fair prices for farmers and consumers, as mentioned in Article 39 TFEU, can be achieved best, inter alia, through innovation; reiterates that sustainable and innovative agriculture, which produces high-quality products, contributes to meeting many horizontal-policy TFEU goals related to the environment and health; whereas future competitiveness depends, among other things, on the intrinsic productivity and fertility provided by natural processes and resources;
- N. whereas the Memorandum of Understanding between the Commission and the EIB signed on 14 July 2014 explicitly encourages further investments in innovative agriculture, by providing financial instruments to foster the uptake of investments in agriculture, including a proposal from the Commission aimed at supporting and expanding financial tools in the farming sector in order to combat price fluctuations;
- O. whereas the agricultural sector has been subject to frequent cycles of change with a view to enhancing productivity; whereas these cycles have significantly contributed to the economic development of agriculture to its current level; whereas the incorporation of the latest technologies and adapting and re-inventing existing ones including organic and agro-ecological approaches into farming practices, will bring significant benefits to

all sizes of farms; whereas aquaculture has an underexplored potential for introducing innovation into traditional agricultural practices by exploiting marine and oceanic natural resources in a sustainable way;

- P. whereas in some Member States, for various structural reasons, large areas of abandoned agricultural land continue to lie unused;
1. Notes that agriculture has always developed new practices, techniques and production methods that have increased outputs, improved the adaptability of farming practices to new and changing circumstances and cut production costs; notes further that agriculture and forestry are key parts of our natural world providing goods and services that go beyond food production and can be enhanced by fostering new developments; is convinced that innovation is a prerequisite for maintaining this progress;
 2. Is strongly convinced that economic development and sustainable production are not mutually exclusive and are achievable mainly through innovation, research and development, new governance and business models and improved agronomy; stresses the need to support innovation in technology and governance by providing coherent and clear regulation with room for entrepreneurship; urges the Commission to ensure that any future CAP reflects this and that innovation is explicitly taken into account in forthcoming reviews and reforms of relevant legislation which gives more recognition to new and young farmers with novel ideas and business models; highlights the fact that European agriculture is achieving its goal in producing high-quality and high-added-value products, through profitable and knowledge-based solutions as supported by Europe's 2020 strategy; welcomes in this respect the incoming Commission assessment of the 2012 Bioeconomy Strategy's contribution to the circular economy, as the shift from fossil fuels to renewables contributes to cutting energy costs for farmers and thus enabling more investments in innovation;
 3. Stresses that agriculture can be part of the solution by prudently using natural resources and ensuring biodiversity, stimulating innovation being key to this end; considers that agricultural practices are dependent upon natural resources and this interplay should be optimised and production systems better understood to improve management systems; calls for the intrinsic productivity, fertility and resilience of our agro-ecosystems in the medium and long term to be ensured and for a reduction in emissions; emphasises the importance of improving production systems through better adapted crops and rotation systems, improved management systems and notes the importance of a living soil; stresses the potential for job creation not only in the food production sector but also in the tourism, bio-economy and green chemistry sectors;
 4. Takes into account the fact that the EU market for food and agriculture is one of the most integrated markets in Europe and urges the Commission to create and implement regulations that ensure a more level playing field and fair competition in order to encourage economic development in the agriculture and food sector in all Member States;
 5. Points out that small and medium-sized family farms form an integral part of the European agricultural sector and contribute to creating socially and economically vibrant rural areas that contribute to the upkeep of cultural and natural heritage; points out furthermore that these farms experience difficulties at times in tapping the benefits

of advanced production techniques and practices that could ensure a fair income and improve farmers living and working conditions and the creation of high-quality jobs; underlines that innovation has the potential to increase labour productivity and income by reducing production costs and making business more efficient; stresses that ownership of, and access to, arable land are pivotal for farmers and family farms; advocates making farming a more desirable occupation for young men and women, inter alia, by improving access to finance, technology and support programmes; calls for the development of new business ideas and on the Commission to inform farmers more effectively about their opportunities in this respect; acknowledges the social role of agriculture, its contribution to social cohesion and its effect on fighting rural depopulation, the innovative services it brings to local communities and the role it plays in preserving traditional knowledge; stresses the importance of access to fast and reliable rural broadband internet services, and of innovative concepts tailored for all disadvantaged regions, such as mountainous and peripheral areas in the Union and urges the Commission to make this a priority;

6. Encourages the Commission to come forward with solutions to stimulate the uptake of ICT-based management systems, real-time data monitoring, sensor technology and the use of detection systems for the optimisation of production systems or precision agriculture, which inter alia could mean adapting to changing production and market conditions leading to more efficient and optimal use of natural resources, better monitoring of a number of production stages, increased crop performance, reduction of the environmental footprint, energy consumption and GHGs, better understanding of animal behaviour, and improved animal health and welfare; stresses, likewise, that the more extensive use of ICT is key to making farming more environmentally sustainable and the sector more competitive; encourages, in this respect, the Commission to improve the alignment of the various policies concerned in order to promote more effectively ICT management systems;
7. Recalls that a simplification of measures and more guidance on the implementation of CAP measures would encourage farmers to adopt more sustainable farming practices;
8. Is convinced that information gathered by robotics, sensor technology, automatic control and other technological innovations in the context of Internet of Things (IoT) technologies and Big Data will enable real-time monitoring, better decision-making, and improved operations management along the whole food chain; welcomes the creation of the Alliance for Internet of Things Innovation (AIOTI) (Working Group 06) on 'smart farming and food safety', and stresses in this respect the importance and relevance of the European Digital Single Market for agriculture in terms of tackling problems of interoperability, standards for better convergence and questions of ownership of, access to and use of, personal and non-personal data;
9. Is concerned at the low level of awareness concerning the potential of Big Data and IoT and the fragmentation of the related technology systems, which increase the barriers to uptake and slow down deployment, and is disappointed at the slow take up of GPS technologies; highlights the importance of making these technologies meaningful to the farmers; notes that in the EU currently only 10 % of aided guidance, less than 1 % of real time kinematic movement and less than 1 % of variable rate application techniques are being used; encourages the Commission to quantify environmental and production

benefit and to ensure awareness, knowledge and technology transfers; expresses concern that some Member States risk losing a proportion of the direct payment amount in 2018 owing to their lack of a land register, and suggests that the Commission make available smart tools designed to expedite the mapping of farmland;

10. Encourages the uptake of precision agriculture that provides new whole-farm management approaches, such as GPS/GNSS-technology driven machinery which, in combination with Remotely Piloted Aircraft Systems (RPASs or drones), can work arable land with centimetre precision; agrees that these techniques could significantly reduce both the use of plant protection products and fertiliser and water use, and combat soil erosion; calls on the Commission to remove the barriers to adopting precision farming, in particular those linked to complex and fragmented ICT systems and investment level issues; notes that precision agriculture is also important in stock farming as a means of monitoring animal health, nutrition and yield; encourages the Member States to support these practices, in particular by using the opportunities provided by the new rural development rules in Regulation (EU) No 1305/2013; calls on the Commission to take account, in future revisions of the CAP, of the use of precision farming by farmers in the context of greening; stresses the importance of ensuring that all farms, including those in remote and outlying regions and the smallest farms, and all others involved in rural agriculture have access to multipurpose technologies, given the need to maintain and increase employment levels in those most vulnerable areas;
11. Welcomes the increased use of RPASs for farming purposes, since this can lead to savings in crop protection material and water usage; notes that a proposal for legislation is forthcoming in the revision of the European Aviation Safety Agency (EASA)'s basic regulation, so that all drones would come under EU competence; calls on the Commission to ensure that there are clear and unambiguous EU-wide standards and rules for the civil use of RPASs and that forthcoming legislation takes into account the specific conditions under which drones operate in agriculture;
12. Highlights the importance of new innovative and affordable solutions for the agricultural sector in order to increase the use of more environmentally friendly methods, goods and resources, which could include not only new growing methods and field management but also ways to increase the use of renewable energy and ways to phase out the need for fossil-based fuels;
13. Encourages innovative solutions in animal husbandry that contribute to a higher level of animal health and welfare, which reduce the need for veterinary medicinal products, including antimicrobials; highlights the possibilities for optimising the use of animal faeces in the production of renewable energy and improved fertilisers; acknowledges that within the limits of natural processes, innovative solutions can be found for capturing emissions, diffusing pollution and increasing the energy efficiency of animal housing systems whilst addressing the impact on the cost price; draws attention to the fact that methane can be captured for energy production that could help mitigate climate change; reiterates that antimicrobials should be prudently and responsibly applied and that the entire production chain can be improved with more efficient and faster diagnostic tools, better real-time monitoring, targeted precautionary measures and new ways of dispensing to combat antimicrobial resistance, leaving sufficient room for those

Member States that already do better in this respect and points out the need for research on drugs to cope with emerging diseases;

14. Supports extensive animal husbandry methods and calls for the development of innovative technologies for the accurate assessment of the environmental benefits of grassland and pastures maintained by this type of farming and recognises the benefits thereof as a complement to crop production;
15. Points to the importance of recovering animal protein within the production cycle; calls on the Commission, therefore, to draw up measures to promote the recycling of agricultural waste by encouraging the recovery of protein for feed;
16. Urges the Commission to promote land access policies for small and medium-sized farms and to foster animal production based on pastureland, fodder and the production of plant protein, and to promote research and innovation in relation to the sustainable production of plant protein;
17. Emphasises the untapped potential of technology and innovation for the development of new goods and products (relating to food and feed, machinery, biochemistry, biocontrol etc.) which may have the potential to create employment along the whole agri-food value chain; draws attention, nevertheless, to the fact that innovation and technologisation leads to job losses in traditional agricultural occupations and calls on the Commission and the Member States to provide training and retraining courses for workers in the agricultural sectors affected; highlights the creation of new jobs in the agricultural sector, which is of pivotal importance for rural development, rural repopulation and economic growth, and considers that developing modern agricultural practices will make agriculture more attractive to young farmers and entrepreneurs alike; calls on the Commission to look into the possibilities of incentivising farmers to raise public awareness about the workings of the agri-food chain and new production methods;
18. Is of the opinion that new information technologies provide ample opportunities to establish new value chains, which may include more direct contact between producers and consumers, with a stronger focus on innovative products, new services and more production differentiation, with the potential to provide new income streams for farmers as well as establishing a more transparent marketplace that will be of benefit to farmers and extend their potential reach; points out that innovations in the food supply chain could help to ensure a more even distribution of risks;
19. Stresses the need to tackle food wastage, in particular systemic food wastage, since each year 100 million tonnes of food in Europe is wasted or thrown away, which amounts to approximately 30%-50% of the food produced in the EU; considers that greater cooperation is also needed in the food chain to reduce current levels of waste; points out that out-dated regulatory frameworks should not form barriers to innovative ways of processing food waste and the sharing of best practices and prioritising innovative projects should be encouraged to combat food waste and losses including under Horizon 2020;
20. Underlines that for every tonne of food waste avoided, approximately 4.2 tonnes of CO₂ could be saved, which would have a significant impact on the environment;

stresses, in addition, the importance of a legal framework consistent with the circular economy principle, whereby clear rules are laid down on by-products, the use of raw materials is optimised, and residual waste is reduced as much as possible;

21. Highlights that a sizeable proportion of biotic waste streams are already used, for example, as animal feed or base material for biofuels; considers, however, that these materials should generate even higher outputs by aiming for the most added value and by using new technologies such as biorefining, insect breeding, reuse of animal lipids, enzymes and proteins from residues in the food industry, solid state fermentation, biogas extraction and the extraction of minerals from manure, and the use of surplus manure as a renewable energy source; notes the lack of clear rules and the underutilisation of other resources derived from biomass such as agricultural by-products and waste streams, and encourages the Commission to support their reuse in the energy sector and elsewhere by facilitating EU-wide recognition systems and special measures under the rural development programme that could involve farmers and other stakeholders such as the local authorities in small-scale projects; notes that these recognition systems and special rural development programmes could also facilitate cross-border circulation and improve synergy and coherence with other EU policies;
22. Considers that depleted soil quality is compromising future production, necessitating a change in farming methods and systems, given that the phasing out of animal husbandry has contributed to a decrease in soil fertility on many farms owing to the inadequate organic content and insufficient use of organic fertilisers; is concerned that the EU is highly dependent on the import of minerals for the production of mineral fertilisers such as phosphate and that the production of mineral fertilisers has a high carbon and ecological footprint; emphasises the possibility of processing animal manure into mineral concentrate that could be used to manufacture 'green fertiliser' that could reduce and eventually replace the need for mineral fertilisers, given that its efficiency level is comparable to that of the latter; welcomes the fact that the production and use of mineral concentrates make a significant contribution to the circular economy by closing the mineral loop and will considerably reduce farms' fertiliser costs; asks the Commission to revise the EU regulation on fertiliser and to remove legislative obstacles in the nitrates directive so as to enable and stimulate the development of mineral concentrate from animal manure;
23. Is also concerned at the EU's continued dependence on imported protein feed such as soya and calls for an ambitious protein crop development policy in the EU;
24. Recommends the use of management systems specific to individual farms that measure and evaluate the balance of nutrients at farm level linked to the different chains in the production cycle helping to measure the environmental impact of individual farms and calculate farm-specific nutrient balances; notes that an efficient use of minerals leads to higher crop yields and less need for fertiliser, and contributes to efficient feeding practices, allowing farmers to improve their operations while reducing costs and moving away from generic measures; calls on the Commission to support, by means of co-financing from various European funds, including Horizon 2020 and EFSI, the pilot projects in this field which are already planned, and to present a study on the matter;
25. Encourages the implementation of high-precision low-emission techniques for storage,

transportation and land spreading of manure which would lead to a significant improvement of the plant uptake of nutrients from the manure, thus reducing the need for mineral fertilisers and reducing the risk of water contamination;

26. Points out that better land application techniques are one of the key factors in reducing the total ammonia emission and, consequently, each country should ensure, that low-emission slurry application techniques are used with band spreading (using trailing shoe or trailing hose systems), injection or acidification;
27. Points out that climate-smart farming practices could have a triple-win effect by increasing sustainable production, ensuring climate-resilient farming that copes better with changing and adverse weather patterns, and reducing emissions from the agricultural sector by encouraging productive, resource-efficient and circular systems; stresses that the agriculture and forestry sectors are unique in actively capturing CO₂ by means of plants and forestation, use of cover and leguminous crops, limiting tillage and permanent soil cover, forest shelterbelts that are also beneficial for crop-protection and water holding capacity, and absorbing greenhouse gases in the soil (carbon sinking); notes in this respect the 4/1000 programme presented during the COP21 and the possibility for financial incentives; encourages farmers to continue and to increase their take up of these new and innovative practices;
28. Underlines the important role of agro-forestry in agricultural systems, especially in reducing flooding and soil erosion and in improving soil health; calls for further integration of innovative tree-based approaches in agricultural activities and to remove administrative burdens to optimise catchment-level planning, river basin and water management; stresses the benefits associated with trees for increased sustainability and farming productivity, for biodiversity preservation and local and regional economic development; recognises that traditional silvo-pastoral systems are multifunctional and sustainable land use should be protected and rewarded, while newer methods of incorporating trees in the lowland farming systems such as alley cropping should be considered;
29. Considers soil quality to be of economic and ecological importance since a depletion of the ecological state would result in less productive soil, lower nutrient availability, increases in the susceptibility of plants to pests and diseases, lower water holding capacity and diminished biodiversity; calls on the Commission to support innovative practices and the sharing of best practices such as crop rotation systems, permanent soil cover, limited tillage and fertilising with green legumes and nitrogen-binding bacteria to avoid further soil degradation; points out that, in order to combat desertification and eutrophication, farmers must be encouraged to develop irrigation systems, including improving water efficiency and the application of economical irrigation techniques; believes that the interplay between the mobilisation of organic matter and production needs to be better understood; welcomes research into innovative practices such as the use of microbial interventions (bacterial fertilisers) and studies of plant-soil interactions with mycorrhiza, PGPR and PGR bacteria which could lower the environmental impact and reduce the use of chemical fertilisers and pesticides that damage human and animal health and the environment; recognises the importance of a sustainable soil use that takes account of site-specific needs;

30. Recognises that farm systems are not productive if they are flooded or drought-afflicted for most of the year; calls on the Commission and the Member States to promote innovation in water management and conservation, integrated with farm advice services and extension services, by means of innovative techniques and technology to reduce wasteful irrigation practices and to mitigate flooding; calls for application of these new techniques with existing and new landscape features such as ponds, and with schemes aimed at increasing water retention in the soil and in habitats associated with agriculture such as wet meadows, protecting groundwater infiltration zones, increasing infiltration capacities of water into the soil and water retention; welcomes landscape-level synergies with river basin management planning; calls for encouraging uptake of ‘regeneration agriculture’ techniques to increase the depth of the topsoil layer, encourage humus creation, inoculate dying or unhealthy soils with compost in order to bring them back to optimal functionality etc.;
31. Calls for more efforts to be made to develop and fully implement integrated plant protection management systems by supporting scientific research into non-chemical alternatives and low-risk measures, as defined in the relevant legislation, and pesticides which are more environmentally friendly; cautions against the prophylactic use of plant protection material and underlines in this respect that integrated pest management should make smarter use of the interplay between biological and chemical measures; stresses that innovations in alternative, low risk substances, as defined in the relevant legislation, and physical interventions could be further encouraged along with bio-stimulation and biocontrol at European level; is concerned that the current approach to the authorisation of plant protection products is sub-optimal and that legislation to incentivise the development of integrated pest management is lagging behind; calls on the Commission to come forward with a roadmap geared towards a more sustainable pest management system which includes advisory services; notes that biological control mechanisms relating to pests and diseases could reduce the use of pesticides and may contribute to better plant resilience;
32. Calls for the continuous development of innovative breeding techniques, with European seed banks nevertheless being maintained, which is vital for new and diverse varieties with higher yields, greater nutritional value, better resistance to pest diseases and adverse weather conditions, and to facilitate greater biodiversity; points out that breeding techniques may provide opportunities to reduce the environmental impact of conventional agriculture; cautions against any lock-in chemical dependency on newer varieties; disapproves of the current administrative and regulatory burdens for businesses and encourages community-based farming breeding programmes; underlines that due care is necessary in the approval of new varieties; urges the Commission to encourage the uptake of new techniques which have undergone appropriate risk assessment where it is required and are fully in line with the precautionary principle, and to ensure access to biological materials for SMEs in the breeding sector, and expects it to strongly support innovation in this respect; disapproves of the current decision of the enlarged board of appeal of the European Patent Office (EPO) of 25 March in Cases G2/12 and G2/13;
33. Highlights, in connection with new innovative breeding methods for plant and animal

varieties, the arrangements for the legal protection of biological inventions¹, under which general plant and animal varieties and essential biological processes for the production of plants and animals may not be patented; urges the Commission to verify the interpretation and scope of that derogation, since in the interests of food security, free access to, and use, of breeding materials must continue to be guaranteed;

34. Highlights the possibility of using financial instruments to help improve farming income in Europe; notes that only five Member States have taken up the additional possibilities under the new Rural Development Programme to make use of market-compatible financial instruments in order to address market gaps; calls on the Commission to facilitate access to credit, since lack of such access is often a barrier to innovation;
35. Welcomes the EC-EIB Memorandum of Understanding and its willingness to support agricultural projects and young farmers by providing new financing opportunities for Member States that establish forms of financial support such as guarantee funds, revolving funds or investment capital to facilitate access to credit for farmers and groupings of farmers such as cooperatives, producer organisations and groups and their partners, with a view to helping on-farm investment in modernisation while also offering financing opportunities to overcome barriers to credit, which affects women disproportionately, and financing opportunities for young farmers to expand their businesses, as well as to ensure investment in public-sector research combined with public-private partnerships in order to test and launch innovative products; reiterates that Parliament wishes to see this financial support flowing and to remove any obstacles in accessing this funding;
36. Calls on the Commission to assess in detail which new skills will be required in future European farm management, and to promote their dissemination by every means available;
37. Acknowledges that there is great potential for better risk management and views the current risk management and market management tools as being underdeveloped, a situation which could result in the short-term loss of productivity and long-term loss of innovation; calls on the Commission to investigate and report on the possibility of stimulating private insurance schemes covering adverse climatic events, animal or plant diseases, pest infestations or environmental incidents, as mentioned in Article 37 of Regulation (EU) No 1305/2013;
38. Welcomes the opportunities by the European Innovation Partnership AGRI (EIP-AGRI) for applied research within the agricultural sector and participatory innovation involving communities of rural practitioners; is concerned by the fragmented way EIP-AGRI is implemented nationally and, in this respect, calls on the Commission to ensure the simplest possible procedures for participation; asks the Commission to assess the co-financing mechanisms of EIP-AGRI and other European public policies to incentivise more effective research that looks more at market needs and the need to develop sustainable agronomic and agro-ecological practices and is driven by entrepreneurial and socio-economic needs, creating cross-border research focus groups and greater participation possibilities for businesses; calls on the Commission to be more actively

¹ Directive 98/44/EC on the legal protection of biological inventions.

involved in terms of providing an explicit innovation and research agenda linked to Horizon 2020 programmes;

39. Stresses the importance of consumer awareness and information; highlights that more transparency in the supply chains and in production can help consumers to make more informed choices about the products they are buying; considers that this, in turn, can help farmers to earn higher revenues from their production;
40. Considers that economic development and ecological sustainability are complementary, provided enough room is left for innovation and entrepreneurship and provided action is taken to prevent the appearance of unjustified differences in national implementation and to retrospectively eliminate such differences, so as to ensure a genuinely level playing field in the Union, inter alia, by exploring new and relevant techniques such as satellite imaging; calls on the Commission to ensure a genuinely level playing field for the agricultural sector while at the same time ensuring that relevant environmental legislation, such as the Birds and Habitats Directives, is fully respected in the various Member States and the disparate, contradictory and suboptimal implementation thereof brought to an end;
41. Is concerned that, according to the mid-term review of the EU's Biodiversity Strategy to 2020, there has been no significant overall progress in the contribution of agriculture to maintaining and enhancing biodiversity;
42. Stresses that the CAP should be more focused on farmers' needs and local conditions while not compromising policy goals; stresses the need for a simpler and more flexible legislative framework that is more geared towards national and local conditions and better suited to deliver synergies with other sectors by enhancing and promoting knowledge crossovers, integration of resource use and is better aligned with the circular economy in order to improve the visibility of existing systems for specific promotional labelling and encourage new innovations in the promotion of the diversity of European agricultural products; stresses furthermore that a competitive and sustainable CAP ensures a greater uptake of innovative practices and long-term viability of the European agricultural sector by streamlining government intervention and stimulating public and private sector innovations that contribute to the economic development of Europe, in particular rural areas;
43. Calls on the Commission to report every two years on the impact of Union financing and other Union measures in the field of agricultural innovation on the development of cost prices and selling prices of agricultural products and on the associated financial and economic prospects of family farms in the Union;
44. Considers innovation to be an essential tool and a key horizontal policy priority for the development, implementation and achievement of the objectives of the CAP reform 2014-2020; calls on the Commission, therefore, to provide a more ambitious overarching strategy with measurable outcomes in order to align and focus research and innovation vis-à-vis policy priorities; stresses that the CAP should provide more flexibility for the use of newly developed techniques and practices without an increase in the administrative burden; believes that a horizontal priority for the European legislative framework should be to ensure sufficient leeway for pilot programmes and testing for innovative techniques, while observing the precautionary principle;

45. Calls on the Commission to also ensure that in other fields of regulation aimed at creating a better functioning and integrated internal market, regulations and policies strive to enhance fair competition;
46. Instructs its President to forward this resolution to the Council and the Commission.

EXPLANATORY STATEMENT

Ever since there has been agriculture, agricultural practices have been changing. Be it structural or related to the production process. These changes have made the agricultural sector one of the most dynamic economic sectors, contemporary agriculture practices are state of the art. Being on the forefront of new technology uptake ensures a thriving rural economy as well as keeping pace with wider economic development. Making better use of the innovative power ensure agriculture can be part of many solutions.

The world population will grow to more than 9 billion people by 2050. At the same time, dietary preferences rapidly change with more consumers demanding animal protein like dairy and meat. This requires we need to reduce the ecological footprint of agricultural production to alleviate the pressure on our environment and arable land. The potential of innovation in agriculture has not been fully recognized nor is the European regulatory framework fit to keep pace with rapid advancements. Key-challenges have to be addressed in order to accelerate and stimulate innovation and entrepreneurship in agriculture.

The common agricultural policy should focus more on farmers needs without compromising policy goals, i.e. leaving enough flexibility to enhance innovation and competitiveness. Innovations in technology can help us move away from generic measures and contributes to targeted interventions. Employing precision farming and big data will transform agriculture and contributes to produce more kg of product with less input of resources and more targeted interventions to combat diseases or pests.

Increased knowledge and awareness of the ecosystems surrounding the farmer's production process will enhance developments such as integrated pest management that makes smarter use of the interplay between chemical and biological measures. Targeted incentives in the production process and investments are vital. On the other hand, obsolete legislation should be updated to accommodate new solutions e.g. replacing artificial fertiliser by fertiliser made from animal manure. The agricultural sector is often confronted with conflicting and contradictory measures which steer farmers away from producing more efficient.

Better alignment with other industrial sectors such as chemicals, health and technology is needed by enhancing knowledge crossovers, integration of resource usage and better understanding of reciprocal effects in order to optimize their interplay and better integrating agriculture within the circular economy. Moreover, by integrating innovations in technologies and techniques, new jobs can be created along the whole agro-food value chain and new streams of income can be secured, for example by creating more direct contact between the consumer and farmer or producing more diversified products and services.

The European agricultural sector is of pivotal importance for the Union at large, securing food whilst being a key economic pillar that provides jobs to 25 million people who are directly involved in farm work in addition to people working in the food, retail and other complementary sectors. Nowadays, EU agriculture still sets the standard for agricultural practices worldwide that produces high quality added value products whilst providing knowledge based solutions to feed an ever growing and more demanding world population. By embracing rather than rejecting novel solutions to the oldest and most basic human need of ensuring food supply the EU agriculture will remain relevant for years to come.

22.12.2015

OPINION OF THE COMMITTEE ON THE ENVIRONMENT, PUBLIC HEALTH AND FOOD SAFETY

for the Committee on Agriculture and Rural Development

on enhancing innovation and economic development in future European farm management
(2015/2227(INI))

Rapporteur: Damiano Zoffoli

SUGGESTIONS

The Committee on the Environment, Public Health and Food Safety calls on the Committee on Agriculture and Rural Development, as the committee responsible, to incorporate the following suggestions into its motion for a resolution:

1. Highlights that the global population is growing and is estimated to reach 9.6 billion by 2050, putting increasing pressure on the supply of food and natural resources; notes that this can also have repercussions for European farmers;
2. Points out that the world's utilised agricultural area now stands at less than 2000 m² per person and that that area needs to produce enough food of sufficient quality to keep everyone in the world fed throughout the year;
3. Recognises that the major challenge will be to ensure access to food, and to an adequate supply of good quality and safe food for all EU citizens, while at the same time lowering pressure on natural resources, thereby preserving the environment and valuable resources for future generations; emphasises, in this regard, the potential and importance of innovation in farm management; stresses the importance of the Milan Charter and the need for a conducive EU policy framework in order to meet this challenge; further emphasises that sustainable farm management can be a strong foundation for economic viability;
4. Stresses the need to tackle food waste, and in particular systemic food waste, since each year 1.3 billion tonnes of food is wasted or lost; considers that, to reduce the present waste, greater cooperation is needed between farmers, producers, and distributors; urges Member States to find innovative ways to tackle food waste, such as the distribution of unsold food to charitable organisations if it is still fit for consumption or, if not, its reuse in the nutrient cycle through composting; points to the need to promote food education

programmes within the family and at school so as to encourage a proper diet from childhood;

5. Underlines that for every tonne of food waste avoided, approximately 4.2 tonnes of CO₂ could be saved, which would have a significant impact on the environment; stresses, in addition, the importance of a legal framework consistent with the circular economy principle, whereby clear rules are laid down on by-products, the use of raw materials is optimised, and residual waste is reduced as much as possible;
6. Stresses, therefore, the importance of innovation in supporting farmers in the transition to more sustainable agricultural practices, with the aim of securing the right to quality and safe food and increasing the efficiency and sustainability of production and distribution systems while ensuring a decent income for all farmers, the protection of public health and animal health and welfare, and a reduction in pollution and greenhouse gas emissions, thus mitigating the effects of climate change;
7. Insists that good farm management practices should halt biodiversity loss in line with the EU's Biodiversity Strategy to 2020 and ensure the protection of air, water and soil quality so as to guarantee the productivity and sustainability of the agricultural sector in the future; considers that the same objective should also be achieved by GMO-free crop production and cloning-free livestock production;
8. Notes that successful farms depend on water and soil quality and biodiversity and that the good stewardship of natural resources lies in the hands of the farmers; highlights the benefits that the right incentives and the sharing of best practices in the field of sustainable farm management can bring in this regard; underlines the key role played by organic and biodynamic farming in preserving natural resources, preventing environmental pollution and directly and indirectly preserving biodiversity;
9. Recalls that with appropriate economic incentives, fairer income distribution in the food supply chain and transparent market conditions including country of origin labelling, farmers would be given the opportunity to tackle climate change more effectively and to ensure the resilience of ecosystems through the use of environmentally-friendly farming methods and ecological practices, including measures such as crop diversification, the conservation of natural habitats, ecosystems and local varieties and species, and organic farming, thereby further contributing to the conservation and promotion of biodiversity;
10. Stresses the importance of consumer awareness and information; highlights that more transparency in the supply chains and in production can help consumers to make better informed choices about the products they are buying; considers that this, in turn, can help farmers to earn higher revenues from their production;
11. Recalls that a simplification of measures and more guidance on the implementation of the Common Agricultural Policy (CAP) measures, would encourage farmers to adopt more sustainable farming practices;
12. Recognises the important role of family farms in rural life, in producing food and in preserving the culture and tradition of Member States and their regions; calls therefore for the spread of innovative concepts in agriculture based on sustainable production of high-quality food;

13. Is concerned that the mid-term review of the EU's Biodiversity Strategy to 2020 stressed that there has been no significant overall progress in the contribution of agriculture to maintaining and enhancing biodiversity, and, as result, calls on the Commission and Member States to take this into account during the mid-term review of the CAP and for Member States to promote innovative policies;
14. Underlines the need to integrate production and processing by promoting producers groups and encouraging short supply chains which might help to reduce the carbon footprint of the food supply chain while providing local, fresher and healthier products for consumers;
15. Stresses that bringing farmers and consumers closer together through local food networks, often characterised by personal, direct contact between the producer and the customer, offers values such as fresh and locally produced food with less impact on the environment, and represents an opportunity to increase farmers' incomes; notes the positive role played by short supply which covers a range of direct selling (selling on the farm, at farmers' markets, or via the internet);
16. Believes that research and innovation in agro-ecology are key factors in supporting the sustainable growth and competitiveness of the agri-food sector that could in turn improve social and economic conditions for farmers and local communities with the creation of more and better jobs, which would also help to attract young people to the farming sector; recognises, in this regard, the important role played by agricultural colleges and universities in supporting the development of skills for a new generation of farmers;
17. Further stresses that encouraging young farmers would help to redress the problems of land abandonment and an ageing rural population, thereby also limiting the risk of hydrogeological instability; emphasises that curbing the tendency towards land abandonment would also limit the phenomenon of land-grabbing;
18. Considers that the enhancement of innovation and economic development in farm management must be achievable for large, medium and small-scale farmers; believes that better links between the agricultural sector and research and innovation should be facilitated in order to share and implement methods of best practice on the ground;
19. Urges the Commission and Member States to invest more in research and innovation and to support the development of technologies that contribute to sustainable and economically viable farm management, whilst at the same time preserving the traditional knowledge and agricultural practices of farmers and animal breeders;
20. Considers that these investments should aim to strengthen the links between research, industry and farms, especially small and medium-sized ones, by facilitating the exchange of best practice and the transfer of research results to such farms which, despite being more numerous across the EU, are often excluded from innovation circuits; stresses that these programmes should aim to develop new technologies, including precision farming, and innovative sustainable cultivation techniques that can reduce the use of chemicals that are harmful to human and animal health and to the environment;
21. Highlights the significance of improving rural broadband networks as a contributory factor to enhancing innovation and economic development in farm management,

particularly for medium to small-scale farmers;

22. Underlines the importance of applying sustainable farming and water management practices to adapt to and mitigate climate change;
23. Calls on the European Union to develop and explore integrated strategies to reduce the use of antibiotics to protect human and animal health and animal welfare;
24. Emphasises that by raising livestock on pasture, farmers enable their animals to move freely, engage in instinctive behaviours, consume a natural diet, and avoid the stress and illnesses associated with confinement;
25. Urges the European Union to invest more public funds in the strategic sector of organic farming in order to develop farming techniques to increase soil microbial activity and biodiversity, including the use of composting techniques and of companion planting and cover crops, and to encourage the collective purchase and use of machinery and the development of machines adapted to the needs of organic farming, the selection of locally appropriate robust varieties, the identification of new sources or organic fertilisers and natural solutions for the protection of plants against insects;
26. Calls on the Commission and Member States to invest in the improvement of varieties of endemic plant species which could be suitable for animal feeding in order to reduce the dependence on imports of animal feed that is often produced from genetically engineered plants.

RESULT OF FINAL VOTE IN COMMITTEE ASKED FOR OPINION

Date adopted	22.12.2015
Result of final vote	+: 59 -: 7 0: 0
Members present for the final vote	Marco Affronte, Margrete Auken, Pilar Ayuso, Zoltán Balczó, Catherine Bearder, Simona Bonafè, Biljana Borzan, Lynn Boylan, Cristian-Silviu Buşoi, Soledad Cabezón Ruiz, Alberto Cirio, Miriam Dalli, Seb Dance, Angélique Delahaye, Jørn Dohrmann, Stefan Eck, Bas Eickhout, Eleonora Evi, José Inácio Faria, Karl-Heinz Florenz, Francesc Gambús, Elisabetta Gardini, Gerben-Jan Gerbrandy, Jens Gieseke, Sylvie Goddyn, Matthias Groote, Françoise Grossetête, Jean-François Jalkh, Giovanni La Via, Peter Liese, Norbert Lins, Susanne Melior, Massimo Paolucci, Gilles Pargneaux, Piernicola Pedicini, Bolesław G. Piecha, Michèle Rivasi, Annie Schreijer-Pierik, Renate Sommer, Dubravka Šuica, Tibor Szanyi, Jadwiga Wiśniewska, Damiano Zoffoli
Substitutes present for the final vote	Nikos Androulakis, Nicola Caputo, Mark Demesmaeker, Herbert Dorfmann, Luke Ming Flanagan, Elena Gentile, Martin Häusling, Jan Huitema, Merja Kyllönen, Mairead McGuinness, Ulrike Müller, James Nicholson, Alojz Peterle, Christel Schaldemose, Jasenko Selimovic, Keith Taylor
Substitutes under Rule 200(2) present for the final vote	Lucy Anderson, Beatriz Becerra Basterrechea, Michał Boni, Neena Gill, Monika Hohlmeier, Sander Loones, Helga Stevens

RESULT OF FINAL VOTE IN COMMITTEE RESPONSIBLE

Date adopted	21.4.2016
Result of final vote	+: 29 -: 7 0: 3
Members present for the final vote	Clara Eugenia Aguilera García, Richard Ashworth, Paul Brannen, Daniel Buda, Nicola Caputo, Matt Carthy, Albert Deß, Herbert Dorfmann, Norbert Erdős, Luke Ming Flanagan, Martin Häusling, Jan Huitema, Peter Jahr, Jarosław Kalinowski, Zbigniew Kuźmiuk, Philippe Loiseau, Mairead McGuinness, Nuno Melo, Ulrike Müller, James Nicholson, Marijana Petir, Bronis Ropè, Jordi Sebastià, Jasenko Selimovic, Maria Lidia Senra Rodríguez, Czesław Adam Siekierski, Marc Tarabella, Janusz Wojciechowski
Substitutes present for the final vote	Bas Belder, Franc Bogovič, Rosa D'Amato, Ivan Jakovčić, Karin Kadenbach, Annie Schreijer-Pierik, Ricardo Serrão Santos, Estefanía Torres Martínez, Vladimir Urutchev, Ramón Luis Valcárcel Siso
Substitutes under Rule 200(2) present for the final vote	Keith Taylor