Final Report Summary - FACCE ERA NET PLUS (Food security, Agriculture, Climate Change ERA-NET plus)

Executive Summary:
The main goal of the FACCE ERA-NET Plus action was to organise and fund a joint call for transnational research projects on the topic of climate smart agriculture and specifically, adaptation of agricultural systems in Europe under climate change. This topic is a core research theme of the Joint Programming Initiative on Agriculture, Food Security and Climate Change (FACCE-JPI) and thus the FACCE ERA-NET Plus allowed to contribute to the delivery of the FACCE-JPI Strategic Research Agenda (SRA). It thereby also contributed to the overall EU objective of building the European Research Area (ERA) through enhanced cooperation and coordination of national research programmes. The participating countries of FACCE-JPI agreed that climate change adaptation is a research priority and the majority have committed funding to this ERA-NET Plus action.
This FACCE ERA-NET+ action, in providing the means for a joint call, was one of the actions of the JPI aimed at aligning research programming among its members over the long term so as to increase the efficiency of research funding, cover gaps, avoid duplications and provide high-level innovative research in Europe. It contributed to the aim of FACCE-JPI to organise multiple simultaneous joint actions toward the achievement of its goals.

This ERA-NET + succeeded in:
- Delivering a joint call with a funding commitment of nearly 15.8 million euros with 22 participating funding organisations from 18 different countries (including 3 Associated States: Israel, Norway and Switzerland);
- Aligning research from 23 national research programmes around a common call with common objectives and expected impacts covering all EU climate zones;
- Funding nearly 12.8 million euros to 11 trans-national projects in the field of climate smart agriculture/adaptation to climate change;
- Providing knowledge and innovative tools to EU farmers, breeders and policy makers, in addition to scientific publications;
- Delivering a key core research priority of the FACCE-JPI Strategic Research Agenda.

Project Context and Objectives:
The overall aim of the FACCE ERA-NET+ action was to allow the 18 Member and Associated State partners to successfully implement a Joint Call on Climate Smart Agriculture as part of the FACCE-JPI action strategy detailed in the SRA thus further increasing the level of coordination between European research funding bodies in the area of Agriculture, Food Security and Climate Change. In this respect, the achievements of the ERA-NET + will contribute to the strategic objective of the JPI which is to build a European Research Area in the domain of agriculture, food security and climate change as well as to the scientific objective of enhancing resilience in agricultural production systems. In turn, this will contribute to tackling the societal challenge of ensuring food security in the face of climate change.

FACCE-JPI is a joint programming initiative that started in 2010. It brings together 24 Member States, Associated Countries and third countries that share the goal of aligning research programming in order to reduce duplication, create synergy and address research gaps and in so doing provide knowledge for practitioners and a knowledge base for policy makers. This ERA-NET Plus action was one of FACCE-JPI’s first actions following the pilot action, the Knowledge Hub MACSUR and the Multi-partners call on Agricultural Greenhouse Gas Research.

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Specifically, this ERA-NET Plus action had the following objectives and succeeded in:

- Enhancing operational coordination of RTD public funding in Europe by implementing a transnational joint call, thus improving coordination and reducing overlapping between national and EU funding;
- Contributing to the ERA by aligning research in 23 national research programmes;
- Contributing to achieving critical mass and ensuring better use of limited resources in the area of adaptation to climate change;
- Contributing to delivery of the FACCE-JPI SRA by setting up a joint call on one of 5 core themes (adaptation to climate change) through new knowledge generation and innovation;
- Providing a leverage effect on national financial contributions through the participation of the EC (adding 32.72% to the call budget);
- Contributing to addressing the societal challenge of sustainable agriculture and food security in the face of climate change through more resilient production systems;
- Contributing to research for devising resilient and eco-efficient crop and livestock systems while ensuring conservation of soil, water and genetic resources and taking into account socio-economic aspects of adaptation;
- Contributing to the experience of the JPI in setting up fast, easy and simple ways to set up transnational projects to improve future calls by sharing good practices in implementing research programmes.

Project Results:

WP1 – Preparing and launching the Call
This WP aimed at ensuring the most efficient and successful implementation of the co-funded call in the frame of FACCE ERA-NET+. In order to be able to launch this call early enough in FACCE ERA-NET+ (M1), much work has been done before its start, among which the preparation of call documents and the computing of the submission tool. In strong cooperation with the Steering Committee of FACCE ERA-NET+ and with the JPI secretariat, which ensured also synergies with FACCE-JPI (among which GB, SAB and StAB), the call announcement was prepared, including the scope of the call, eligibility criteria, evaluation criteria, procedures, proposal templates... In addition, each funding organization participating in the call prepared a “National Annex” according to a common template, which was also included in the call announcement. The call announcement was sent to the project officer in charge of FACCE ERA-NET+ more than 30 days before call opening. The call announcement was published by call opening. In parallel, a pre-announcement was also prepared (M-2), published on FACCE-JPI webpage and provided to all partners who could then start promoting the call at regional and national level. As the high level of submitted pre-proposals and of partners submitting a pre-proposal (785 in 121 pre-proposals) indicates, the promotion of the call was very efficient and attracted many potential applicants. The submission tool was computed in order to ease the proposal submission and reduce the ineligibility of proposals (which was a success since 118 of 121 pre-proposals were found to be eligible). It was user-friendly and not much time was required in order to get all administrative data entered in the online database. A template was provided in order to prepare the project description. The proposals could be stored in a secure way and made available to WP2 for evaluation and eligibility check. For the second step (full proposal submission), the tool was computed in a way that avoided applicants to require more funding than in the pre-proposal, with the aim to avoid strong oversubscriptions of funders and then to be able to fund all best-ranked proposals in the end. Templates were again made available for the project description part as well as for the work packages section. All partners in an applying consortium had also a role to play in the full
as for the work packages section. All partners in an applying consortium had also a role to play in the full proposal submission. Again, this step was also successful; since 39 full proposals were submitted (40 were invited to do so, some of them with provisions). At both submission steps, an online FAQ (Frequently Asked Question) as well as guidelines for the use of the submission tool were made available on the tool as well as each national annex written by the funders participating in the call, also in order to reduce the risks of submitting an ineligible proposal. Also the tool itself performed an eligibility check and applicants were informed during the process that corrective actions had to be taken before the proposal submission. Once the call was released, a main task was the maintenance of the tool and call documents and the support provided to applicants, on the phone and via email. Also, each funder had nominated National Contact Persons (NCP) who could provide support for nationally relevant issues.

WP2 – Evaluating and selecting the proposals
Upon reception of the pre-proposals from WP1, the proposals have first been checked by the Call Office (ANR) against the core eligibility criteria (common to all countries involved: scope of the call, minimum 3 countries involved, duration,...) and then passed to the country representatives (Steering Committee members) for eligibility checking at national level in line with each individual country’s funding scheme requirements (eligibility of industry, funding limits per project, specific duration allowed, thematic priorities,...). At the same time the projects were sent to the Scientific Advisory Board in order to perform the step 1 scientific evaluation. The pre-proposals were ranked by the SAB in descending order based on the average overall score.

In the end, a list of 40 proposals was invited to continue to step 2. A communication was sent to all coordinators having submitted a pre-proposal (121 letters prepared), including rejection reasons (non-eligibility or negative evaluation) as well as improvement suggestions/needs for those consortia which were positively selected.

An online tool was built to allocate the proposals to the experts and update this information at any time. Before being able to download the proposal and start the evaluation, each expert had to declare being outside any conflict of interest. A pool of 17 international experts was established by the Call Office further to proposals from the Steering Committee based on their excellence in the field of climate smart agriculture and in all the domains covered in the selected proposals from step 1. The Chair of the Scientific Evaluation Committee (SEC) was nominated by the Steering Committee. In addition to this pool, 15 additional reviewers were included as external reviewers of the step 2. The SEC met twice in Paris to allocate each proposal to internal/reviewers (7 April 2014), analyse the reviews and come to a consensus regarding the ranking of the proposals (23-24 June 2014). The 39 proposals received were ranked by score, going from 14,33/15 to 7,75/15. In the end, the SEC felt the need to rank proposals within the additional A/B+/B/C categories. The first seven projects were ranked A, the next six projects were ranked B+ and the next seven B. The remaining projects were ranked C. The Rapporteur for each proposal drafted feedback taking into account reviewer comments and SEC discussions; SEC then worked in groups to finalize the feedback.

The results and justification behind the final ranking was presented by the Chair to the Steering Committee (1st July 2014). Only the 13 first projects were presented to the Steering Committee (A and B+ projects). An observer from the EC was invited but not present to this meeting. The Steering Committee drew up the list of proposals for funding taking into consideration the funds available for each participating country in line with the funding commitments and funding model proposed for the real common pot (EC funds).

In the end, 11 consortia were recommended for funding by the Call Steering Committee, following strictly the ranking of the SEC. A list of selected projects was published on the JPI website and on the different...
The ranking of the SEC. A list of selected projects was published on the JPI website and on the different national websites after informing each applicant individually of the outcome of their evaluation including the project’s evaluation report.

Once the ranking list has been approved, applicants have been informed of the favourable outcome of their proposal (task 2.2 done in M10) and of the procedure to be followed at national level or at the EU level for signature of their grant agreement. The Call Office has followed up the negotiation of individual project partners with their national funding body to ensure that the process goes as quickly and smoothly as possible so as to not jeopardize the project start date and workplan.

WP3 – Monitoring and evaluating the projects

So far, FACCE ERA-NET+ projects generated 185 scientific articles in peer reviewed international journals and submitted manuscripts, of which 86 articles (46 %) have been published or are accepted and in press. In total 225 oral presentation were given in scientific congresses completed by 122 poster presentations.

The following paragraph gives an overview of the results and achievements of FACCE ERA-NET+ funded research projects:

- The project CAOS established a comprehensive soil data base and developed a yield forecast & decision support tree for policy makers, administration and farmers
- CINDERELLA included pilot studies and developed a harvesting machinery in cooperation with stakeholders
- Climate-CAFÉ tested and evaluated a wide range of adapted high-performance strategies for EU areas with different climatic threats to re-design farming systems for adaptation to CC
- Climbar identified sources for genes and alleles resilient to the abiotic stresses of a changing climate as well as new candidate genes that confer resistance against fungi PM; Development of modelling approaches to be used in further breeding programmes
- ClimGen developed several software systems. Furthermore, data of ClimGen might be used by a small start-up company which offers different genetic products and services for breeders
- Genomite identified targets for breeding programmes, biopesticides and markers of drought resistance
- GrassLandscape identified genomic markers, which will provide information to set up genetic pools of perennial ryegrass for a regional adaptation of European grassland to Climate Change
- GreenRice developed an alternate wetting and drying system, which enables a strong reduction of grain arsenic content compared to permanently flooded system
- MODCARBOSTRESS developed an open source software for multiplex CO2 monitoring and regulation, licensing negotiations with private companies are underway
- OptiBarn developed region-specific, sustainable adaptation strategies for dairy housing, focusing on an optimized climatisation of naturally ventilated buildings; Building and Software engineering companies expressed their interest in the outputs of OptiBarn
- SYBRACLIM identified potential biomarkers to be used for selection in breeding programs of oilseed rape

WP4 Impact assessment and dissemination

In the first half of the project, the common kickoff meeting of the funded projects was organized. A booklet describing the call and its statistics as well as the summary of each project was published and made available to all project coordinators, the actors of FACCE, JPI and beyond. The website of FACCE, JPI was
available to all project coordinators, the actors of FACCE-JPI and beyond. The website of FACCE-JPI was updated to include all the funded projects and updated as necessary. Finally, based on the auto-assessment of the call process, a set of recommendations have been elaborated to improve the process in the future.

In M49 (March 2017), two back-to-back workshops were organised in Brussels together with 2 other FACCE-JPI actions, MACSUR and the Multi-partner call on Agricultural Greenhouse Gas Research, one the mid-term meeting of the ERA-NET Plus and the other a pilot valorisation workshop. Two documents were prepared in advance of this meeting summarizing project results and key outcomes (scientific, policy, practice). The valorisation workshop gave rise to a workshop report.

In M53 (March 2018), the common end term project meeting was held in Paris. Prior to this meeting, an evaluation panel was constituted of 6 members, including representatives of the FACCE Scientific Advisory Board and Stakeholder Advisory Board as well as members of the original project evaluation panel (Jerry Cherney (Cornell University, USA; member of Evaluation Panel of the ERA-NET Plus call); Antonio Lo Porto (Italian Water Research Institute (IRSA-CNR), member of FACCE-JPI Stakeholder Advisory Board; Suzanne Reynders, INRA; José Sanchez Serrano (Consejo Superior de Investigaciones Cientificas (CSIC), member of Evaluation Panel of the ERA-NET Plus call); Anne-Marte Tronsmo (member of FACCE-JPI Scientific Advisory Board); Aline Syp (Institute of Soil Science and Plant Cultivation-State Research Institute in Puławy, Poland; member of Evaluation Panel of the ERA-NET Plus call).

This panel participated in the end term meeting and then prepared an impact assessment report on the overall set of projects funded. Their task was to evaluate whether the projects in this program contributed to the call objectives, and identify which FACCE-JPI Strategic Research Agenda Core Theme Priorities were addressed. Their report was based on project presentations at an end-term meeting in Paris on 22-23 March, 2018, project summary abstracts prepared for the end-term meeting, and annexes of end-term reports (including publications, dissemination activities, and outcomes).

The panel assessed the academic impact of projects, and whether or not projects demonstrated European added value. The panel also evaluated the current and future valorisation opportunities for this program, recognizing that the original Climate-Smart-Agriculture call did not specifically include valorisation in its scope. Finally, the panel identified some potential gaps in the program and how they might be addressed in future FACCE programs.

Potential Impact:

WP1 – Preparing and launching the Call

The co-funded call was promoted both at EU/international level, in particular via the FACCE-JPI website, the PLATFORM website and ERA-LEARN, and the mailing of a pre-announcement beforehand of opening the call, and at national/regional level via the contribution of the individual funding organisations involved in FACCE ERA-NET+. By doing so, particular attention was paid to inform « multiplicators », e.g. clusters, of this funding opportunity, who forward then the information in their networks.

The main impact of this WP is represented by the high demand and therefore amount of pre-proposals submitted in the frame of this call. The Call Office received numerous expressions of interest via phone and/or mail and informed systematically of the process to follow in order to apply. This was also facilitated by the use of a « Partnering Tool », where interested potential applicants had the opportunity to provide an entry in order to describe their interest (e.g. « interested in joining a consortium » or « interested in finding partners ») and also the opportunity to browse actual entries, facilitating therefore the consortium building, in particular for « newcomers » in transnational projects.
WP2 – Evaluating and selecting the proposals

WP2 managed the proposals evaluation process both at step 1 and at step 2 including the coordination of the proposal evaluation with the SC and the Evaluation Committee, implemented and oversaw the quality assurance of both the evaluation procedure and processes and coordinated and oversaw the negotiation of individual research grants (+ consortium agreement) at national levels.

As a result, 11 projects have been funded. The indicative total available budget (commitment) for the call amounted to 15.8 M€ from 22 national funding organisations from 18 countries, and the European Commission. Following selection of the 11 projects, 15 countries contributed 12.928.446€ to finance them.

WP3 – Monitoring and evaluating the projects

FACCE ERA-NET+ sought to support research addressing ‘the adaptation of agriculture in the context of the environmental, social and economic factors of sustainability’ and highlighted the importance of trans-disciplinary approaches and the integration of stakeholders. Evaluating the outputs and outcomes of the 11 projects funded by FACCE ERA-NET+ as well as a cautious estimation of the potential impact of their outcomes has been a challenging and comprehensive task. Monitoring and evaluating FACCE ERA-NET+ projects after three years showed to what extent funded projects achieved the desired objectives and to what extent projects were able to deliver high quality academic outputs within the area of Climate Smart Agriculture while simultaneously engaging with relevant stakeholders to valorise scientific results.

Remarkably, FACCE ERA-NET+ projects published over 80 scientific articles already, with more than 100 articles to come. With a mean impact factor greater than three plus the fact that researchers aim to publish their final results in highly ranked journals clearly demonstrates the high research quality of FACCE ERA-NET+ funded projects and their emerging potential.

Furthermore, projects clearly demonstrated impact on the scientific community considering the large number of oral and poster presentations at scientific congresses, as well as the organisation of major scientific events or sessions during international meetings.

Impact of the funding scheme on enhancing research capacity by creating jobs and enabling training of scientists as well as the effect on fostering transnational and transdisciplinary research and contributing to the harmonization of methods, processes and technologies were considered similar important as scientific outputs and have been evaluating at end-term. Over 200 jobs have been created during the programme’s period. PhD and master students have been employed as frequently as experienced scientist and postdocs indicating a good balance between experts and young scientists. This was also acknowledged by coordinators indicating ‘increased research capacity’ as one of the key outcomes for their consortium.

Further emphasis is needed to establish and integrate a solid understanding within the scientific community for open access policy as not all data, databases and software are publicly available. However, some of the guidelines, protocols, procedures on data collection and utilization might be pioneering for future research. Last but not least, the impact of FACCE ERA-NET+ on its research community is further demonstrated by several research partners being granted follow-up funds to perform further research or even to implement the results.

Several figures and a closer look at the individual project’s achievements clearly demonstrated substantial interaction with stakeholders including breeders associations and farmers as well as industrial partners and to a lesser extent, advisors, NGOs and policy advisors. Some projects also targeted general public and consulted researchers and scientists i.e. by creating advisory boards. The majority of projects pursued a participatory approach fostering the dissemination, uptake and utilization of results.

In summary, it can be said that, through work achieved within WP3, FACCE ERA-NET+ sufficiently
In summary it can be said that, through work achieved within WP3, FACCE ERA-NET+ sufficiently promoted research in the context of climate smart agriculture by advancing scientific excellence, building capacity and strengthening the scientific community, and by demonstrating solid stakeholder involvement as well as policy relevant research, resulting in assessable valuable outcomes at the end of the research projects.

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The objectives of the pilot valorisation workshop were to:
- Build a dialogue and common understanding between the climate-related policy needs and research results from funded FACCE-JPI projects related to climate;
- Identify the most urgent climate policy needs for which FACCE-JPI funded projects could contribute and identify projects whose results could feed into these needs;
- Build teams of researchers and stakeholders who could combine relevant climate policy questions with the results from different projects in order to co-construct key ideas / key-messages to be further developed as policy and / or practice brief(s).

Several policy makers were invited to give key note speeches and each project was presented rapidly. Breakout groups allowed researchers and policy makers to exchange on the needs for policy and how research results could feed into this process. This pilot workshop was considered a success by participants and allowed a better understanding by researchers of policy needs in the area of the ERA-NET Plus.

In M53 (March 2018), the common end term project meeting was held in Paris. A rather innovative process was put in place in which, prior to this meeting, an evaluation panel was constituted of 6 members, including representatives of the FACCE Scientific Advisory Board and Stakeholder Advisory Board as well as members of the original project evaluation panel (Jerry Cherney (Cornell University, USA; member of Evaluation Panel of the ERA-NET Plus call); Antonio Lo Porto (Italian Water Research Institute (IRSA-CNR), member of FACCE-JPI Stakeholder Advisory Board; Suzanne Reynders, INRA; José Sanchez Serrano (Consejo Superior de Investigaciones Científicas (CSIC), member of Evaluation Panel of the ERA-NET Plus call); Anne-Marte Tronsmo (member of FACCE-JPI Scientific Advisory Board); Aline Syp (Institute of Soil Science and Plant Cultivation-State Research Institute in Pulawy, Poland; member of Evaluation Panel of the ERA-NET Plus call).

This panel participated in the end term meeting and then prepared an impact assessment report on the overall set of projects funded. Their task was to evaluate whether the projects in this program contributed to the call objectives, and identify which FACCE-JPI Strategic Research Agenda Core Theme Priorities were addressed. Their report was based on project presentations at an end-term meeting in Paris on 22-23 March, 2018, project summary abstracts prepared for the end-term meeting, and annexes of end-term reports (including publications, dissemination activities, and outcomes).
The panel assessed the academic impact of projects, and whether or not projects demonstrated European added value. The panel also evaluated the current and future valorisation opportunities for this program, recognizing that the original Climate-Smart-Agriculture call did not specifically include valorisation in its scope. Finally, the panel identified some potential gaps in the program and how they might be addressed in future FACCE programs. This type of evaluation in which some of the original evaluation panel members were asked to assess the impact of the projects at their end is novel, and important for evaluating how a call has (or not) achieved its goals.

To summarise, the FACCE ERA-NET Plus action overall allowed to address the following impacts:

• Contributing to the ERA by allowing to address the grand societal challenge of sustainable agriculture and food security in the face of climate change through more resilient production systems with improved coordination and efficiency in the use of resources through the alignment of research in 23 national research programmes;

• Increasing European research visibility and impact at the international level by reducing overlapping between national and EU funding, by providing a leverage effect on national financial contributions through the participation of the EC (adding 32.72% to the call budget), by filling gaps and creating critical mass through the implementation of the transnational joint call;

• Enhancing operational coordination of RTD public funding in Europe through a jointly agreed implementation plan where best practices in joint call administration, evaluation and project monitoring have been shared, used and evaluated for quality assurance;

• Contributing to delivery of the FACCE-JPI SRA by setting up a joint call on one of the 5 core themes (adaptation to climate change) through joint generation of new knowledge and innovation. Indeed, an evaluation of the overall impact of projects by an expert panel demonstrated “the FACCE-JPI Climate-Smart-Agriculture program was substantially successful at addressing some of the potential climate change impacts on European agriculture”. They also identified some potential gaps in the program and how they might be addressed in future FACCE programs.

• Contributing to the objectives of the Common Agricultural Policy by focusing research on the design of resilient and eco-efficient crop and livestock systems which, in the meantime, ensure conservation of soil, water and genetic resources and accommodate socio-economic aspects of adaptation to climate change.

List of Websites:

A project flyer was published and distributed at the kick-off meeting (available at https://www.faccejpi.com/content/download/4848/454).

Two internal publications were prepared ahead of the mid-term meeting – an updated abstract book with the projects from the 3 actions invited and a second pamphlet describing the scientific, policy-relevant and practice-relevant findings from each project. Ahead of the end-term meeting, a book of updated abstracts was again prepared, highlighting key scientific findings but also policy and practice implications.

The FACCE ERA-NET Plus was also described in an article in EU Research (Summer 2018) in which the project ClimGen was featured.
Dernière mise à jour: 11 Avril 2019
Numéro d’enregistrement: 267960