Introduction

OECD’S CO-OPERATIVE RESEARCH PROGRAMME (CRP)
- Funds cutting-edge research on food, agriculture, fisheries and forestry.
- Facilitates international research fellowships and conferences.
- Focuses on sustainability, food security and nutrition.

CRP member countries benefit from:
- access to an international scientific network
- an important vehicle for international co-operation
- an opportunity to showcase their national scientific research and excellence in agriculture, food, fisheries and forestry.

CRP OUTPUTS REGULARLY FEED INTO OECD SUPPORT TO IMPROVING PUBLIC POLICIES.

Membership in the OECD CRP is open to all countries.
The world will need to feed a population of at least nine billion by 2050. The ability to do so hinges on the sustainability of the world’s natural capital and its food production systems. Knowledge sharing and innovation in agriculture, food, fisheries and forestry have never been so important.

Governments across the world have declared their commitment to agricultural research.

In 2015, the internationally agreed Sustainable Development Goals (SDGs) affirmed the importance of food security; improved nutrition; and the sustainable management of agriculture, fisheries, marine resources, ecosystems, biodiversity, forests and land (SDG 2, 14, 15).

In 2016, participants in the OECD Meeting of Agriculture Ministers agreed to make innovation a priority. They endorsed the Declaration on Better Policies to Achieve a Productive, Sustainable and Resilient Global Food Systems, calling on the OECD and its members to:

- promote production systems that use resources sustainably, for animal, plant and human health

- help farmers increase their resilience and cope with more frequent, unpredictable events such as weather-related shocks, disease outbreaks and market volatility.

In 2016 in Niigata, Japan, G7 agriculture ministers:

- recognised the CRP as a multilateral framework whose work is to be facilitated

- highlighted a number of CRP priorities, including combatting diseases, biological threats, antimicrobial resistance and climate change; reducing food loss and waste; and promoting resilient infrastructure, land, forests and fisheries.
Why is the CRP valuable to policy makers?

The CRP helps achieve globally agreed policy objectives by facilitating international co-operation among research scientists and institutions. In doing so, it strengthens scientific knowledge and innovation.

The CRP places a policy emphasis on all the activities it funds. CRP findings provide valuable evidence and information to support policy makers in promoting the sustainable use of natural resources in food, agriculture, forestry and fisheries.

The CRP focuses on global issues such as food security, climate change and the inter-connectedness of economies through trade and scientific co-operation. This enables CRP-funded research to generate benefits for people around the world, producing results that resonate within and beyond the programme’s member countries.
What impact has the CRP had?

Some examples of CRP impact to date include:

- **2015**: A CRP fellowship on water quality in New Zealand led to the development of recommendations for herbicide application by the Auckland Regional Authority. After the recommendations were implemented, no herbicide residues were detected in reservoir waters.

- **2013**: Trichinosis affects both animals and humans. A CRP-sponsored workshop developed recommendations for international standards to help ensure a Trichinella-free food chain by reducing the cost of pork safety measures while alleviating complex barriers in international trade.

- **2012**: Managers and directors of Co-operative Food, a food retail business in the United Kingdom, used the proceedings of a CRP-sponsored workshop to develop food supply chain innovations and company sustainability profiles.

- **2011**: The Global Soil Biodiversity Initiative is a platform that helps translate scientific knowledge on soil biodiversity into environmental and sustainable land management policy, thereby protecting and enhancing ecosystem services. The initiative was launched at a CRP-sponsored conference on Soil Science in a Changing World.

- **2010**: The honeybee mite *Varroa destructor* causes the death of millions of bees globally. A research project in Hawaii helped stakeholders understand the problem and influenced policy at the European Parliament.

- **2010**: The *Japanese Biodiversity Outlook* was published, based on a study presented at a CRP-sponsored conference.

- **2008**: Discussions at a CRP-sponsored workshop on livestock waste treatment contributed to the adoption of clean technologies by the North Carolina legislature (USA).
The CRP research themes for 2016-2020

To deliver on the overarching challenge of food security and sustainability, the CRP has identified three central themes for 2016-20. All applications for CRP funding must be relevant to one (or more) of these themes.

The following pages outline the main areas of focus within each of these themes.

- **Sustainability, Food Security and Nutrition**
- **OECD’s Green Growth Strategy**
- **Triple Dimensions Prism** (Social, Economic, Environmental)

Our context: **Globalisation and climate change**
Central Theme 1
Managing natural capital for the future

... helps to ensure the availability and the quality of natural resources.

- **Landscapes and ecosystems.** Healthy functioning landscapes deliver a range of services to society. As agriculture is often the dominant land user, maintaining these services depends on sustainable agricultural practices.

- **Soil, water and biodiversity.** Agricultural production depends on soils, which provide the foundation for productivity. Agriculture is also a major user of water and biodiversity. Modern management practices coupled with climate change and other human activities pose threats that must be managed.

- **Aquaculture and fisheries.** Marine and fresh-water ecosystems are important sources of food and bio-energy products, yet many are already under pressure.

- **Forests.** Forests provide wood biomass, carbon sequestration, water retention and biodiversity, and they protect land. Yet forest degradation and deforestation continue at an alarming pace.

- **Integrated agricultural production systems.** A diversity of efficient, productive and environmentally sustainable agricultural systems will be needed to manage natural capital while meeting future food security challenges.

In the photo below, preliminary data is being collected to characterise the spatial distribution of soil properties in an experimental plot (Institute for Sustainable Agriculture). From a 2016 fellowship: Now you see it and now you don’t: developing multidimensional models of soil salinity and water status.
This OECD CRP fellowship has opened up an extremely productive new collaboration, which I anticipate will continue for many years. – Fellowship host
Central Theme 2
Managing risks in a connected world

... through research helps to anticipate, pre-empt and cope with potential and real impacts on agricultural systems and food security.

- **Invasive species and biosecurity.** To ensure biosecurity and also enhance trade opportunities, it is crucial to understand the global spread of pests and diseases, and to ensure their early detection and assessment.

- **Food safety.** Food-borne diseases take a major toll on public health. Technology to ensure food safety, nutrition, and sustainable consumption and processing is essential.

- **Emerging diseases.** Pre-emptive science can help to deal effectively with pathogens such as SARS, avian influenza or Ebola. With the growing global reliance on a small suite of crop and livestock species, it is also essential in combatting new diseases that threaten agricultural productivity and crop health.

- **Antimicrobial resistance.** The emergence and spread of antimicrobial-resistant pathogens raises serious concerns for public health. To preserve the efficacy of antimicrobials, information gaps must be filled and alternative management strategies developed.

- **Climate risks.** Climate change and variability pose threats to farming enterprises, particularly subsistence or marginal agriculture. Existing and new technologies for crop or livestock improvement offer opportunities to adapt to and mitigate these threats through profitable, sustainable and resilient farming systems.

- **Risk assessment.** By refining and applying easily accessible risk assessment tools, governments and managers of agricultural systems can anticipate, avoid and react to risks related to biosecurity, climate or market access, thereby minimising their negative impact.
These images from Chile were produced using RADARSAT-2 satellite data and illustrate the differences in soil moisture on two different dates. From a 2016 fellowship: Developing Prescription apps from Synthetic Aperture Radar (SAR) Satellite Imagery for Variable Rate Irrigation (VRI) Applications.
Central Theme 3
Transformational technologies and innovation

... make it possible to achieve a step change.

- **Precision agriculture** employing GPS, spatial mapping, equipment guidance and robotics minimises inputs while boosting crop growth rates in economically, socially and environmentally responsible ways.

- **Advanced breeding tools** (genetics and genomics) directly address issues of agricultural productivity, food security, human nutrition and health while reducing stress on natural capital and contributing to green growth.

- **Novel waste reduction technologies** reduce post-harvest and post-purchase losses, representing the “low hanging fruit” for food supply and food security.

- **Biofuels, bio-products and bioprocesses** make important contributions to dealing with climate change, but their production on an industrial scale requires innovation to ensure whole-of-supply-chain integrity and sustainability.

- **Innovations in social science, economics and education** facilitate the translation of scientific knowledge into policy changes, while encouraging wider adoption of sustainable practices by farmers and consumers alike.

Photos taken during a 2014 fellowship in Italy on Soft Kernel Durum Wheat: Sustainable Local and Global Food Security
I have known the OECD fellowship programme for many years and I continue to believe that it represents a great opportunity to start or strengthen scientific co-operation. Personally, I still have scientific relationships and collaborative publications with institutions that I met in the two OECD fellowships (2001 and 2010) I was awarded.

– Fellowship Host and former fellow
How does the CRP achieve its objectives?

Fellowships:* CRP funds short-term research projects for individual scientists in other CRP member countries. These fellowships strengthen the exchange of ideas and increase international mobility and co-operation. Some 76% of the fellowships result in long-term co-operation between the fellow and their host institutes, a major goal of the programme.

Conferences:* The CRP sponsors international conferences and workshops to help keep policy makers, industry, and the academic world informed of innovative research, scientific developments and opportunities.

These activities:

- promote co-ordination among stakeholders to ensure that their objectives do not overlap or contradict each other
- provide objective evidence of the possible outcomes of approaches and options
- support the definition of measurable policy objectives (e.g. the incorporation of soil security into national law)
- highlight the links between agriculture and diverse policy areas (e.g. the role of education in ensuring food security and sustainability).

*Applicants for fellowships and conferences must be from CRP member countries.

Left: From a 2015 fellowship: Biofouling in Chilean salmon aquaculture: assessment of risks to fish health and the environment.
The networking done at the workshop has proven to be invaluable. - Workshop participant
CRP activities at a glance, 2010-17

Fellowships:
- 246 fellows
- from 150 research institutes
- at 160 host institutes
- in 23 countries

Conferences:
- 70 CRP-sponsored conferences
- in 28 countries
- with 750 key-note speakers
- from 41 countries

A successful and highly regarded programme:
Regular surveys of CRP participants and sponsors yield extremely positive appraisals of the programme’s worth, with close to 100% of participants finding them useful for scientific information exchange or collaboration.

Below: The CRP-sponsored International Symposium on Food Safety (ISFS): New tools to detect and prevent foodborne outbreaks from farm to fork, Santiago, Chile, 5-7 December 2016.
The fellowship was an excellent opportunity to establish the contact and start our co-operation.
– CRP fellow
How does the CRP work?

The Governing Body comprises a representative from each member country. It agrees the programme of work, the budget and selects the fellowships and conferences to be funded.

The Scientific Advisory Body, nominated by the Governing Body, is made up of six eminent scientists with agricultural research administration experience. It reviews applications for funding to ensure their scientific quality and makes recommendations to the Governing Body.

National Correspondents are responsible for promoting the CRP among scientists and institutions in their countries. There is one national correspondent for each member country (for some, it is the same person as the Governing Body representative).

The Secretariat, at OECD headquarters in Paris, is responsible for the day-to-day operation of the programme and provides a central contact point.

Funding for the CRP is provided through the financial contributions of the CRP’s member countries.

CRP member countries (at 1 January 2018)
Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, Germany, Hungary, Ireland, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Slovak Republic, Spain, Sweden, Switzerland, United Kingdom, United States

Find out more about the CRP
Full details about the CRP are available at www.oecd.org/agriculture/crp, including:

- a list of conferences and fellowships funded since 2010
- feedback and reports on the conferences and fellowships
- the criteria for research fellowships
- how to apply for a CRP fellowship or conference sponsorship.

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We would welcome the opportunity to work with the CRP again. – Conference organisers