

Doing well by doing good

Australian investment in international agricultural research pays its way

Investment in international agricultural research and development is highly beneficial to overseas farmers and economies. It also brings significant returns to Australia's farmers, biosecurity, scientific knowledge and our global diplomatic reputation. Recent studies commissioned by the Crawford Fund demonstrate:^{1,2}

- Economic returns on investment range between a minimum of \$3 to \$10 for every dollar invested.
- Global and Australian investment in the international research centres of CGIAR has seen a return of US\$600 billion for an investment of US\$60 billion.
- Investment in international agricultural R&D has enabled us to adequately feed 5 billion more people over the last 60 years, and has reduced the proportion of the hungry and malnourished.
- Investing in agricultural development has been shown by the World Bank to be the best way to reduce poverty and raise the GDP of the world's poorest countries.
- Collaborative research to increase overseas capacity to tackle food and nutritional security and natural resource management also increases Australian scientists' knowledge and capabilities.
- Access to new plant varieties through Australian investment in the international research centres has maintained the economic competitiveness of Australian farmers.
- Australian investment has facilitated the development of sustainable agricultural industries, gender equity, adaptation to pest and disease threats, and helped countries meet UN Sustainable Development Goals.

Despite the benefits highlighted in independent studies, only 2.5 per cent of the development-assistance budget is given to agricultural R&D. It is in the interest of Australia to support an increase in the proportion of Australia's development-assistance budget given to international agricultural R&D.

Our reports demonstrate that Australia's investment in agricultural development through our aid budget is an outstanding success. It is well-targeted and contributes to the food and nutrition security of low-income countries, as well as their environmental and economic sustainability and resilience, and to gender equity and regional stability.



The accomplishments of our investment into agricultural R&D and capacity-building contribute to influence and 'soft power', and improve Australia's international reputation. We are perceived as a serious and significant contributor to the international community by willingly and freely sharing Australian intellectual property in agriculture.

Similarly, ACIAR's role in leading the Global Research Alliance on Agricultural Greenhouse Gases demonstrates Australian commitment to climate change mitigation and adaptation.

Economic benefits for developing countries and Australia

- For every \$1 invested in international agricultural R&D, \$5 of results is delivered in economic benefits for developing countries and Australia.
- The benefit-to-cost ratio for ACIAR's investment in its multilateral program, through its support of the CGIAR program, is likely in the order of 10:1, with a minimum estimate of about 3:1.
- A reasonable estimate of the benefit-cost ratio for a well managed portfolio of research projects is 10:1, which is consistent with econometric estimates for the agriculture sector in general and with the estimates for the CGIAR and national agricultural research centres in CGIAR partner countries.
- Access to new plant varieties developed by CGIAR Research Centers has delivered significant economic benefits for Australian farmers and consumers, and maintained our farmers' competitiveness in world markets.

In developing countries, an increase in agricultural productivity reduces poverty by twice as much as a comparable increase in productivity in other sectors of the economy.

Increasing drought-resilience

Subsistence farmers in Laos are now more food-secure thanks to an ACIAR project that introduced direct seeding of drought-tolerant rice with a machine rather than laboriously transplanting seedlings by hand. This means farmers have more time for other activities, such as growing vegetables. ACIAR and its partners invested \$14.6 million in these projects from 1997 to 2012. This investment has yielded strong returns, with a net present value of \$50.1 million, and a benefit-to-cost ratio of 4.4:1.



Photo: ACIAR, Conor Ashleigh

BY THE NUMBERS

Since 1982, ACIAR has commissioned and managed

more than
1,500
research projects

in
36
countries

partnering with
150
institutions

and more than
50
Australian research organisations

By 2021, ACIAR had supported

800 **28**
researchers from countries

across Asia, the Pacific and Africa to pursue academic or leadership studies in Australia as ACIAR fellows

Between 2012 and 2020, the Crawford Fund supported

395
short training courses, masterclasses and one-on-one mentoring programs

attended by over

5,000 **71**
participants countries

Between 2012 and 2020, the Crawford Fund supported

318 young Australians
to attend its annual conference and participate in their special scholar program

By 2021, ACIAR had published

102
impact assessment reports on its projects

Capacity-development across value chains changes lives and creates connections

The Crawford Fund's niche and focus on capacity-development through workshops, masterclasses and mentoring allows it to complement ACIAR work and leverage its own extensive networks. The Crawford Fund's work across agricultural value chains has demonstrated its ability to 'punch above its weight' and achieve:

- international networks that benefit a diversity of researchers in Australia and internationally
- positive global reputation for Australia's agricultural R&D
- better understanding of the contextual and cultural issues facing agriculture in developing countries
- connections between people across diverse backgrounds and perspectives that lead to 'cross-pollination' of knowledge, and ideas on how to improve agricultural production and contribute to social and human development goals.

Improving oyster productivity

An ACIAR project that assisted Vietnam to develop an oyster industry based on access to reliable oyster spat (oyster larvae attached to a surface) has seen production increase from 100 tonnes to 15,000 tonnes, providing incomes for 2,500 families in 28 provinces. In parallel with the work in Vietnam, Australian scientists have developed improved molecular tools which are being used to breed Sydney rock oysters with improved disease resistance, growth and meat condition.



Photo: ACIAR

Happy seeding

ACIAR's projects on the rice-wheat rotation in India fostered the adoption of a new machine, the Happy Seeder (see below), for direct seeding of wheat into uncultivated soil immediately following rice harvest, which allows farmers to plant without burning the rice stubble. The Happy Seeder helps farmers to conserve their water and soil—resulting in increased crop yields and lower production costs. For planting in 2021, there were thousands of Happy Seeders operating in farmers' fields in the Indian states of Punjab and Haryana.



Photo: ACIAR

Australia gains new knowledge and skills

Australian farmers directly benefit from investment in international agricultural R&D by gaining new skills and knowledge.

- Australian researchers gain practical knowledge of how to improve the productivity of different crops in different climatic or agro-ecological conditions, which can benefit Australian farmers working with similar crops under similar conditions.
- New knowledge and skills are captured and shared through collaboration between Australian universities and research agencies, and our overseas counterparts.
- Australian researchers and biosecurity managers benefit from being able to study potential pests and diseases (to both cultivated plants and domesticated animals, and to native flora and fauna) *before* they reach Australia.
- International agricultural research relationships and networks enable prompt and coordinated responses to emerging issues in international plant and animal science.
- Through our international agricultural R&D, Australia gains detailed knowledge on international trade and value chains that is potentially useful for our own production and trade.

Environment, gender-equity and biosecurity benefits delivered by international R&D

Research that helps developing countries implement agricultural practices that protect and restore their natural resources means their agriculture will be more sustainable long-term. Sustainable agriculture delivers improved food security, reduces poverty and means developing countries are better able to mitigate and adapt to climate change.

People working on ACIAR projects in developing countries are very conscious of the need to empower smallholder women farmers. Often women do not have decision-making power and conduct the most labour-intensive agricultural tasks while maintaining their domestic households. Achieving food and nutrition security means empowering women.

Through our global and national agricultural R&D networks, Australia and its international partners also monitor pest and disease outbreaks affecting our biosecurity. We also share technological innovations to help overcome and eradicate these risks.

Diplomacy and reputation gains from investment in international agricultural R&D

Australia's investment in international agricultural R&D is pivotal to our foreign aid program and commitment to the United Nations' 2030 Agenda for Sustainable Development. As a prosperous country, Australia has a responsibility to contribute to global efforts to reduce poverty, alleviate suffering and promote sustainable development. This also serves our interests because the more that countries can provide economic opportunity for their citizens, the more stable they will be.

Australian investment in R&D for agriculture is mostly through the Australian Centre for International Agricultural Research (ACIAR), which aims to revitalise agriculture in low-income countries—mainly in the Indo-Pacific region. ACIAR's multilateral program involves support of and collaboration with the 15 CGIAR agricultural research centres around the world.

The Crawford Fund works alongside ACIAR to build the capacity of scientists and farmers in low-income countries. Our developing-country partners consider this capacity-building to be as least as valuable as the economic benefits from agricultural R&D.

- 1 Australian Gains from Investment in International Agricultural R&D 2010-2020: Doing Well by Doing Good Report (PDF, 205 KB) produced by John Mullen, Julien de Meyer, Caroline Lemerle, Garry Griffith and Bill Malcolm, 2022, www.tinyurl.com/yc5w6vcw.
- 2 The Benefits to Australia and to the Global Community from Investing in International Agricultural Research and Development (PDF, 698 KB), produced by Alluvium International (Dr Neil Byron, Dr Jan Edwards, Mette Kirk and Steve Charlton-Henderson), 2022, www.tinyurl.com/2hbexha8.



Photo: ACIAR

Raising women up

A project to improve technical skills in Laos's plantation-forestry sector found that the sector was notoriously male-dominated. However, project researchers who aimed to help build a viable and internationally competitive value chain for plantation-grown trees realised that this improvement begins and ends with women. Women raise the seedlings in nurseries, and plant the trees intercropped with rice for the first two years. And it ends with women, who are the majority of workers in processing factories. This led to more job opportunities for women as well as a more productive timber value chain.

COVID-19, climate change and conflict are putting intense pressure on global food and nutrition security. The impacts of these three Cs superimposed on diminishing investment in international agricultural R&D hold grave consequences for low-income countries with rapid population growth.

Australia's support for international agricultural R&D is well-targeted and contributes to the food and nutritional security of low-income countries, as well as their environmental and economic sustainability and resilience. Investment in global and regional agriculture and food security is an extremely effective means of enhancing Australia's reputational and diplomacy efforts, and has economic and other significant pay-offs 'at home'.

The depth and breadth of the outcomes from Australia's investment in international agricultural research demonstrate that we really are doing well by doing good.



For further information

Cathy Reade, Director of Outreach, cathy.reade@crawfordfund.org
Phone: 02 6280 8611 Web: www.crawfordfund.org
Socials: @CrawfordFund