

# INTERNATIONAL AGRICULTURAL RESEARCH IS AID THAT WORKS - FOR AUSTRALIA AND DEVELOPING COUNTRIES

International agricultural research works for developing countries and Australia. It delivers benefits to Australian agriculture because the new scientific tools and insights delivered to developing countries can also be applied to Australian agriculture due to the fact that Australia shares soil, water and climatic conditions, has interests in the same crops and livestock, and is troubled by similar pests and diseases.

*“The reasons for Australia being involved in international research and development assistance are at once altruistic and self-interested with tangible and non-tangible benefits; and our involvement is of immense benefit to our international and trade relations.”*

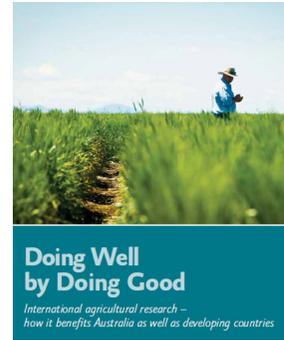
- The Hon John Kerin AM FTSE  
Chairman, The Crawford Fund  
and The Hon Tim Fischer AC FTSE  
Former Chairman, The Crawford Fund

International agricultural research also serves our national interests of regional peace and security. It achieves this by alleviating poverty and by enhancing food security and economic growth in developing countries. By supporting agricultural research, Australia is “Doing Well by Doing Good.”



The Crawford Fund’s purpose is to make more widely known the benefits that accrue both to Australia and internationally from international agricultural research. The Fund conducts a range of public awareness activities, researches food security issues, arranges specialist training in Australia and overseas for developing country scientists, and conducts master classes for developing country personnel in key topics in agricultural research and development.

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*Doing Well by Doing Good: International Agricultural Research - how it benefits Australia as well as developing countries*

This Report is available on the website or by contacting the Crawford Fund

The Fund’s Queensland committee involves Queensland institutions and scientists to deliver training that benefits those involved in both developing countries and Australia. By working with the Fund, institutions can gain further rewarding involvement in international agricultural research. Are you involved in an agriculture for development project that would benefit from training for your developing country partner scientists? Contact:

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# INTERNATIONAL AGRICULTURAL RESEARCH WORKING FOR...

## QUEENSLAND

The Crawford Fund believes that international agricultural research delivers a wide range of benefits to Australian agriculture.



It also holds the key to alleviating rural poverty in developing countries, opening the door to economic progress and serving our national interests of regional stability.

The Crawford Fund provides an avenue for Australia’s highly experienced agriculturalists to exchange knowledge with their counterparts in developing countries.

*“Supporting agricultural research for food security provides Australia with benefits worth more than we spend on it through our aid program.”*

- The Hon Neil Andrew AO, horticulturalist,  
former Speaker of the House of Representatives  
and Chair of the Doing Well by Doing Good Task Force



Collaborative projects on fruit production, livestock nutrition and diseases, pest management, improved production of crops, forestry products, weed control, better management practices, coconut and peanut productivity and crop modelling are just some examples of international agricultural research involving Queensland institutions and researchers and delivering benefits to Queensland.

Much of the aid-funded agricultural research work is undertaken through projects funded by the Australian Centre for International Agricultural Research (ACIAR), and is assisted by training funded by the Crawford Fund. Current and pipeline ACIAR projects involving Queensland organisations account for a total expenditure commitment of approx \$192 million for 118 projects.

This work has involved partnerships with researchers throughout Asia and the Pacific and is having a positive impact on Queensland agriculture too.

Here's how, in just a few examples of ACIAR projects:

### Better livestock feed

*Leucaena leucocephala* is an important feed source for Queensland cattle producers. The leucaena psyllid is a major problem in northern Australia and around the tropical world. International research, including University of Queensland researchers, led to the discovery of psyllid resistance in species in the *Leucaena* genus which was used to breed resistant cultivars for feeding ruminants. New psyllid resistant cultivars are about to be released in Queensland. Research has also greatly improved understanding of the problem of leucaena toxicity in ruminants consuming high levels of this plant in their diet. In Indonesia and Australia sophisticated studies at the molecular level and in the field have generated important knowledge for the management of leucaena toxicity in Australian cattle herds.

### Banana disease control and new varieties

Black Sigatoka screening trials were conducted in South Pacific countries where this disease is located to determine suitably resistant varieties for the Cape York Banana Replacement Program, a buffer against the disease progressing from PNG/Torres Strait to the north Queensland industry, and for the backyard replacement program in north Queensland. This work, involving the Queensland Government Department of Agriculture, Fisheries and Forestry (DAFF Qld), also assisted with the Tully black Sigatoka eradication program, the world's only successful eradication of black Sigatoka. The ongoing benefits are immense in value to the value of millions of dollars every year.

A practical and economical test was also developed to detect Banana Bunchy Top Virus which greatly assisted in keeping this menace at bay in Australia.

A variety of collection missions to developing countries has provided some valuable disease resistant banana varieties and the commercial varieties Goldfinger and Dwarf Ducasse.

### Biological control of two Class 1 weeds

*Chromolaena odorata* and *Mikania micrantha* are Class 1 weeds in Queensland. Research involving DAFF Qld, conducted in Indonesia, Timor Leste and PNG identified that the gall fly is a highly effective biocontrol agent of *Chromolaena odorata*. The gall fly was subsequently introduced into quarantine in Australia for further research.

*Mikania* rust, which has been thoroughly tested prior to being released in China, Taiwan, PNG, Fiji and Vanuatu, is now being considered for importation into Australia. Research overseas identified the most effective strain of the rust, as well as culturing and field release methods. ■ ■ ■ ■ ■

*Research on both biological control agents has saved Australia hundreds of thousands of dollars in exploration and testing, as well as reducing the possibility of further spread of these weeds into neighbouring countries and Australia.*



### Drought resistant peanuts

Peanut breeding programs at the International Crops Research Institute for the Semi-Arid Tropics in India have developed a range of elite germplasm, with high levels of drought-resistance and very early maturity, which have been introduced to Australia.

The project, including DAFF Qld, also resulted in improved understanding of the major traits associated with drought resistance in peanuts and the development of 'easy-to-use' surrogate tools to select for these traits in the breeding programs.

The project has led to the release in Australia of two drought-resistant peanut varieties, one of which was intended for use in dryland regions, but is rapidly gaining ground in coastal cane-farming systems because it allows growers to return to the cane-cropping cycle up to four weeks earlier than with conventional varieties.

### Improved maize varieties

The genetic diversity of maize germplasm in Queensland has been enhanced by the introduction of elite materials from research in Africa by the International Maize and Wheat Improvement Center (CIMMYT). Compatible CIMMYT and Queensland maize breeding populations have been identified to facilitate the exchange of germplasm for mutual benefit. Further work to characterise maize growing environments in Queensland is being undertaken by the Queensland Alliance for Agriculture and Food Innovation for application in Africa.

### New silvicultural practices and products

Working with landholders in Vietnam, DAFF Qld researchers and a leading Queensland plantation grower have studied alternative silvicultural practices in hardwood timber plantations.

The project has demonstrated the viability of reducing the harvest cycle from a 30-45 year cycle to 10 years and doing away with pruning and thinning.

Low-cost, lean processing technologies have also been developed to produce peeled veneers, engineered wood and other products from what was previously considered to be a low-value resource. These systems make it possible to generate substantial returns from short-rotation plantings.