Success does not always bring with it predictable results. The Green Revolution of the 1950s and 1960s freed millions across the developing world from hunger. It also created avenues out of poverty, on the back of economic growth fuelled by increased agricultural productivity.

At the end of the 1960s and during the early 1970s expectations remained high for lifting the developing world out of poverty. Agricultural research, responsible for the semi-dwarf crop varieties central to the Green Revolution, was predicted to play a vital role in transforming the developing world.

Instead something unexpected happened. Investment in agricultural research began to drop from highs of about 17% of aid investment during the late 1970s to just 6% by 2007.

Success had led to complacency. Aid agendas changed, in part due to the belief that agriculture would continue to grow as research lifted yields. During the period from the late 1970s to the late 2000s many of the gains in crop yields were, literally, eaten up by population growth.

Productivity gains in agriculture have not, historically, remained consistent over time. Global agricultural production must increase by about 0.8% each year to accommodate projected rises in population. In the least developed countries that rate of increase needs to be 1.8%. Pests, diseases and climatic variability impact on yields and also reduce productivity over time so that investment in agriculture must be directed to maintaining yields against these impediments. Lifting yields, therefore, requires investment above and beyond that required for maintenance.

Falling productivity patterns have mirrored a progressive slowing down in the growth rate of total spending on agricultural R&D (Alston et al. 2009, ‘Mendel versus Malthus: Research Productivity and Food Prices in the Long Run’). At the same time the role of agricultural productivity in reducing poverty in developing countries was becoming widely accepted.

Something had to give, and it did so in 2007–08 with a sharp spike in the price of staple food crops. The corresponding increase in the numbers of people falling below the poverty line in developing countries sparked action to increase investment in agricultural research within the aid programs of a number of countries, including Australia.

The food crisis also drew attention to the connections between policies and the implementation of agricultural research outcomes in the developing world. This edition of Partners examines some of those connections, from the broad policy environment through the research networks disseminating outcomes to the farmers benefiting from that work.

Increasing agricultural research investment has already begun. The case for doing so was outlined by ACIAR’s CEO Dr Nick Austin at the ABARE Outlook conference earlier this year. An edited extract of his speech is included, suggesting a series of mini ‘green revolutions’.

In an interview with the head of the World Bank’s Development Research Group, linkages between policy, the broader aid picture and Millennium Development Goals are discussed, as is trade policy. The work of two international agricultural research centres is also reported. The Director General of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) outlines that centre’s programs, while work to assess the impact of the International Rice Research Institute’s (IRRI) research is also covered.

In Indonesia a series of projects is extending the results of research to smallholders, lifting their productivity and income. A key to these successes is an understanding of the needs of farmers, where these intersect with policy and how these connections impact on local environments.

In the 50 years since the Green Revolution agricultural research has lifted gross world food production from 1.84 to 4.38 billion tonnes, an increase of 138%. Yet almost 1.5 billion people still live in absolute poverty.

Lifting those people out of poverty requires investment in research that delivers results within the context of local environments, policies and farmers’ needs. The future of agriculture must understand and heed the lessons of the past in order to create a better tomorrow. This edition of Partners shows some of the factors vital to agricultural science continuing to play a key part in shaping a better tomorrow.
Features

Farmers’ fields become classrooms
On-site research is helping a rice specialist better understand how rice growers can increase production potential and, with that, Indonesia’s goal of food security

Research ambition shines in Lombok’s peanut fields
A peanut improvement program on the island of Lombok, part of the ACIAR-SADI initiative, aims to make peanuts a productive and profitable local industry

Fisheries R&D nets improved livelihoods for Indonesian farmers
ACIAR’s specialist R&D support is helping revitalise Indonesia’s ailing aquaculture industry and ensure the sustainability of wild fisheries

Crops and knowledge emerge from tsunami fields
Gavin Tinning, project manager for the ACIAR cropping project in tsunami-affected Aceh, reports on efforts to restore crop production in the region’s villages. His most recent visit to the area was in March 2010

Livelihoods lift with DIY water supply
From harvesting just one rice crop each year on a tiny patch of land, the East India Plateau’s poorest farmers now have the means to create new social and economic opportunities through water-harvesting technology made available by ACIAR

The science of food security
Dr Nick Austin, ACIAR CEO, addressed the annual ABARE Outlook conference on the issues of food security and the role of agricultural research and development. This is an edited version of his presentation

Lessons sought from measuring investment
ACIAR is ensuring transparency in its investments by evaluating the impact of the research it supports

A champion for semi-arid regions
When it comes to cropping in the semi-arid tropics, home to 800 million of the world’s poorest people, the Director General of ICRISAT is rolling out an ambitious R&D program that has important implications for Australian farmers

Poverty action needs a holistic policy mix
The World Bank’s Dr Will Martin discusses the role agricultural productivity can play in reducing poverty

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