Australian Government
Australian Centre for International Agricultural Research

ACIAR FACT SHEET 1
August 2008

Fruit-fly research yields impacts in the Asia–Pacific region

The fruit-fly problem

Fruit flies are a major pest causing large economic losses in agriculture worldwide through the destruction of fruit and vegetable crops.

All fruit-growing areas either suffer from fruit-fly infestations or are at risk of infestation. In Australia alone, fruit flies cost the economy an estimated A$125 million per annum.

ACIAR-funded fruit-fly research

ACIAR has worked with a range of research partners in fruit-fly research and development (R&D) in South-East Asia and the Pacific for 25 years.

ACIAR fruit-fly R&D has included:

- conducting extensive trapping and host fruit surveys to determine the number, distribution and seasonality of pest fruit-fly species and potential damage levels
- training partner-country staff in identification, trapping, surveying and control of fruit flies
- developing and promoting fruit-fly field control methods.

Estimated benefits of ACIAR-funded fruit-fly R&D

ACIAR's recent independent impact assessment study on 17 projects aimed at identifying and managing fruit flies in the Asia–Pacific region showed total benefits in present-value terms of A$258.83 million for Australia and partner countries.

Benefit-to-cost ratio is $5.10 for each $1 invested.

Quantifying impacts

ACIAR's investment in fruit-fly R&D has contributed to greater understanding and identification of fruit-fly species, which provides the knowledge necessary for more effective biosecurity through improved surveillance and quarantine measures.

Our investment has also achieved substantial estimated benefits for Australia and partner countries, including:

- improved biosecurity
- market access based on non-host status
- market access based on postharvest heat treatment
- field control with protein bait
- introduction of low-chill temperate fruit and improved orchard management.

Capacity building is another significant benefit to partner countries. Formal training programs were an important part of many projects. As a result, many participants acquired specific skills necessary to develop and maintain quarantine systems.

Some benefits were location-specific. For example, in Pacific island countries such as Tonga biosecurity and market access benefits were significant, while in other nations these issues proved too complex to effectively manage.

Many projects were also too early in their lifespan to attribute benefits in this report, however the potential for future benefit is considerable, such as in the adoption of field-control protein baits in Indonesia and the possible impact this might have on human health and the environment.

ACIAR

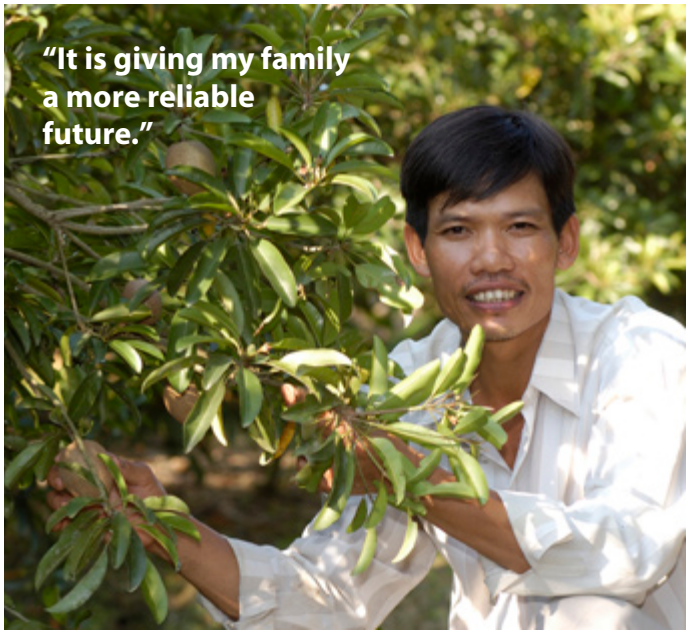
The Australian Centre for International Agricultural Research (ACIAR) operates as part of Australia's development assistance program, with a mission to achieve more productive and sustainable agriculture for the benefit of developing countries and Australia. ACIAR commissions collaborative research between Australian and developing-country researchers. It also administers Australia's contribution to the International Agricultural Research Centres. ACIAR conducts a program of independent impact assessments of the research it funds.

A worthwhile investment

- ACIAR will have invested $15.14 million (in 2006–07 Australian dollars) during 1984–2009. Present value (PV) is $22.87 million.
- Total investment in these projects by ACIAR and its partners will be $33.48 million (in 2006–07 A$) or $50.76 million PV.
- Estimated value of total benefits in PV terms is $258.83 million (in 2006–07 A$) or $212.63 million in partner-country benefits.
- The estimated benefit-to-cost ratio is 5.1:1 for total benefits and 4.2:1 for partner benefits.
- The internal rate of return on total benefits is 33%.

A combined effort

ACIAR is just one organisation working on the fruit-fly problem in the Asia–Pacific region. Several other agencies have funded various complementary fruit-fly R&D projects that in a number of cases contributed to actual benefits and/or prospective benefits likely to be realised in the future.



Vietnamese farmer Nguyen Van Dung was part of an ACIAR-supported project that uses brewery waste as bait for fruit-fly pests. Some farmers were losing up to 90% of their annual crop to fruit flies but now have vastly improved yields.

Summary of project welfare benefits

	2006/7 A$m
Total present value (PV) gross benefits*	258.83
PV gross benefits to Australia*	46.19
PV gross benefits to partner countries*	212.63
PV ACIAR investment in research projects	22.87
PV total cost of research projects (includes ACIAR + partner investments)	50.76
Net present value (NPV) total benefits (after deducting total project costs)	208.07
NPV benefits to partner countries (after deducting total project costs)	161.87
Total benefit-to-cost ratio	5.1:1
Partner countries benefit-to-cost ratio	4.2:1
Total benefit internal rate of return (IRR)	33%

* Attributed to ACIAR and partner projects

Countries involved

Bhutan, Cook Islands, Fiji, Federated States of Micronesia, Indonesia, Laos, Malaysia, Philippines, Papua New Guinea, Samoa, Solomon Islands, Thailand, Tonga, Vanuatu, Vietnam, Australia.

The full report

A review and impact assessment of ACIAR's fruit-fly research partnerships – 1984 to 2007 by Bob Lindner and Paul McLeod (University of Western Australia) Impact Assessment Series No. 56 can be download for free from www.aciar.gov.au/publication/IAS56.

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ACIAR's Impact Assessment Series

At ACIAR, we undertake careful analysis of R&D investments to assess our projects' effectiveness and quantify impacts. This information informs stakeholders and helps us to continuously improve. ACIAR has been commissioning independent impact assessments for many years.

- Impact assessment analysis of 90 ACIAR projects up to 2004 demonstrated total benefits of A$6.6 billion.
- Benefit-to-cost ratio is $30 for each $1 invested.