



Keeping trade free OF PESTS

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ACIAR is helping developing country partners meet the quarantine requirements of WTO accession and global trade. Paul Ferrar reports

With the opening of world trade markets increasingly being hastened by World Trade Organization (WTO) accession and the potential benefits on offer, developing countries are keen to find new markets to build wealth and reduce poverty. For many developing countries, horticulture is a promising first field for trade development. The relatively exotic nature of many tropical fruits and vegetables can result in price premiums in developed countries, and there is often little competition except from other developing countries.

Unfortunately, pests and diseases have a similar demand for fresh tropical produce, resulting in quarantine problems that affect trade in these commodities. In the past, restrictions based on such quarantine factors, whether real or imagined, were used as trade barriers. The creation of the WTO provides a solution to such artificial trade barriers, through Sanitary and Phytosanitary (SPS) regulations. These allow quarantine to be used as a barrier only when based on clear and demonstrated scientific evidence. The WTO has set up a system for arbitrating cases where the scientific evidence for and/or against quarantine is disputed.

This system has great potential to help developing countries compete more equitably in international trade, but in practice they have found it hard to use due largely to two particular constraints:

- knowing which pests and diseases are present in the exporting country and which in the importing country. Few developing countries have detailed knowledge of their indigenous pests, and the lack of this information makes it impossible to challenge unfair quarantine restrictions on trade; and
- crop protection staff in developing countries lack experience in mounting professional scientific challenges, even when information on pests is available.

Recognising these constraints, the Australian Government convened an interdepartmental committee, led by AusAID, drawing on the expertise of:

- AusAID – to provide capacity-building to developing countries

in operation of the SPS provisions;

- ACIAR – to assist developing countries to obtain information on distribution and biological characteristics of their national pests and diseases and practical ways of disinfecting commodities to meet quarantine requirements;
- the Department of Agriculture, Fisheries and Forestry (DAFF) – as operators of Australia's quarantine, to help developing countries meet international quarantine and crop protection requirements and standards; and
- the Department of Foreign Affairs and Trade – to oversee integration of these activities with Australia's trade relations.

This committee also compares notes with AusAID's New Zealand counterpart NZAID, to develop initiatives to help developing countries challenge quarantine decisions.

What does a developing country need?

To be able to use the SPS provisions effectively, a developing country ideally needs:

- a comprehensive, electronic national plant protection database, with information on all pests and diseases, where they are found in the country, which crops they attack, and what damage is done. NZAID has provided this for four ASEAN nations (Vietnam, Laos, Cambodia and Myanmar), and the software is freely available to other developing countries that wish to use it. ACIAR is contributing survey information to be included in these databases, as noted below; and
- crop-protection personnel trained in the use of plant protection databases and with the skills to prepare information for SPS challenges under WTO rules. Under the World Trade Agreement developed countries are required to help developing countries lift their SPS capacity. Australia's efforts are being led by the AusAID SPS Capacity Building Program for ASEAN, with assistance from ACIAR, DAFF and complementary projects from NZAID.

ACIAR's contributions to SPS capacity enhancement have

included research that addresses pre-harvest protection, post-harvest disinfestation and broader effects of compliance with WTO rules. Work on pre-harvest research includes tackling the widespread need to control pests.

Among the major pests of tropical produce – both fruits and vegetables – are fruit flies. Since 1985 ACIAR has been assisting developing countries in Asia and the South Pacific to determine which fruit flies occur in what fruit species, and to come up with solutions for control and disinfestation. Fruit flies have been surveyed in Malaysia, Thailand, Vietnam, Bhutan, Papua New Guinea and seven South Pacific nations, and work is continuing in Vietnam and Indonesia.

This effort is now building up a comprehensive picture of the distribution of fruit flies in Asia and the Pacific, and has resulted in the formation of an International Centre for Management of Pest Fruit Flies (ICMPFF). The centre is headquartered at Griffith University, Brisbane, and is establishing a South-East Asian node in Kuala Lumpur under an agreement with the Malaysian Government. This follows endorsement of the ICMPFF by a meeting of ASEAN Ministers, and the centre will initially serve all ASEAN nations and Australia.

Other surveys supported by ACIAR have included diseases of various fruits and vegetables in Indonesia and Vietnam, vegetable leaf miners in Indonesia and whiteflies in the South Pacific.

Survey 'toolbox'

As a direct complement to the AusAID SPS Capacity Building Program, ACIAR has engaged the Office of the Chief Plant Protection Officer in DAFF to compile a 'toolbox' manual on how to conduct national surveys of particular pest and disease problems. This follows similar, well-acclaimed products from ACIAR on animal health and aquaculture health. The toolbox introduces surveillance methodologies suited to developing country contexts. It is aimed at providing comprehensive guidance to users on how to conduct national surveys of pests and diseases, how to incorporate this in an electronic database for rapid access, and how to prepare and maintain national reference collections of pests and pathogens to provide supporting evidence for information in the database.

ACIAR has also been a core member of the consortium that supported CAB International to compile a Global Crop Protection Compendium. This contains a large amount of information on the pests and diseases of all countries, and can provide invaluable inputs to national crop protection databases.

Pre-harvest management

For export produce to meet quarantine requirements it must be free from live pests or pathogens when it crosses national boundaries. Attacks before disinfestation occurs will leave fruits damaged and unsaleable. ACIAR fruit fly projects have developed methods for reducing infestations in orchards before harvest. These have focused particularly on bait spraying, in which a tiny amount of insecticide is combined with bait that attracts fruit flies but not non-target insects, providing an environmentally friendly means of control. Baits made from processed waste have been found to be excellent attractants for fruit flies – they are cheap and make use of otherwise useless waste materials. Tonga, Vanuatu and Vietnam have all used brewery waste for baiting fruit flies.

Post-harvest disinfestation

ACIAR's post-harvest research program has focused a number of projects on ways to disinfest fruits and vegetables attacked by fruit flies and other pests, to ensure that no residual live pests are present as the commodity is exported. Current projects include:

- reducing aflatoxin in peanuts through agronomic management and biocontrol strategies in Indonesia;
 - post-harvest handling and disease controls against diseases of melons in China; and
 - integrating effective phosphine fumigation practices into grain storage systems in China and Vietnam.
- Past research has addressed:
- the development and application of simple test kits for use in detecting pesticide residues in plant-derived foods;
 - bioremediation technology for insecticide residues in horticulture;
 - monitoring mycotoxins and pesticide residues in grain and food production systems for risk management; and
 - low-cost disinfestation systems for fruits.

The fruit disinfestation system project developed heat treatment disinfestation conditions suitable for mangosteen in Thailand. This satisfied requirements for the export of mangosteen to Japan, with commercial shipments able to begin.

A set of guidelines for quarantine disinfestation for fresh horticultural produce, outlining heat treatments for fruit flies, was developed and reviewed by Thai, Philippines', Malaysian, Vietnamese, Chinese, Indian, Japanese, Australian and US representatives through a joint workshop.

A second project, monitoring mycotoxins and pesticides in grain and food production, has boosted Vietnamese capacity in detecting contaminants. Cost-effective and rapid tests, using the enzyme-linked ELISA technology, have been developed and are now in use in Vietnam, along with the establishment of a monitoring network for testing agricultural produce.

While many of the projects mentioned above have focused on the phytosanitary part of the SPS rules, the sanitary side has also been a subject of research. Sanitary rules can be used to impose restrictions on imports based on such problems as contaminants.

Economic impact of SPS regulations

An Agricultural Development Policy project is examining the trade impact of SPS standards. The project is using analysis of the trends and patterns of food imports and surveys of organisations involved in food trade in India and Thailand.

The aim is to gather information to help determine the degree to which the impacts of SPS relate to measures to comply with SPS rules, as opposed to the impacts stemming from limited capacity to comply with these rules at the country level.

This will help distinguish between the two in terms of impacts on trade, and help provide policy options for countries and the WTO dispute settlement arrangements. Technical, scientific and institutional capacity in India and Thailand will be enhanced, underpinning efforts to help comply with and use the SPS rules under WTO.

ACIAR-supported research into all aspects of SPS compliance described above is beginning to build significant capacity in partner countries in Asia and the Pacific. These efforts, combined with those of other Australian Government agencies such as AusAID and DAFF, are helping bring freer trade a step closer throughout the region.

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