

2. Integrated Pest Management

DFID Department for
International
Development

The purpose of these *Key Sheets* is to provide decision-makers with an easy and up-to-date point of reference on issues relating to the provision of support for sustainable livelihoods.

The sheets are designed for those who are managing change and who are concerned to make well-informed implementation decisions. They aim to distil theoretical debate and field experience so that it becomes easily accessible and useful across a range of situations. Their purpose is to assist in the process of decision-making rather than to provide definitive answers.

The sheets address three broad sets of issues:

- Service Delivery
- Resource Management
- Policy Planning and Implementation

A list of contact details for organisations is provided for each sub-series.

Overview of the debate

Over the past 5 years the debate about integrated pest management (IPM) has focused on:

- The need for a favourable policy and institutional environment for widespread adoption of IPM (including integration of IPM into existing environmental and policy frameworks).
- The role of markets and the private sector in promoting IPM.
- The importance of viewing IPM as a core component of crop and livestock management systems, rather than as a simple alternative to high input systems.
- The applicability of Farmer Field School approaches to IPM in various production systems.
- How to finance the decentralised and participatory research and training effort required to extend farmer interest in IPM and other sustainable management practices.

Key issues in decision-making

There is a broad consensus on the desirability of IPM as a core component of sustainable agriculture. There are also a number of examples of successful IPM implementation. However, in many countries input intensive pest management strategies are still encouraged and IPM alternatives undervalued.

Intervention in support of IPM is most likely to be successful where strong stakeholder support is coupled with government policies to promote farmer adoption of environmentally sound practices. Government has a role to play in:

- actively promoting IPM and removing structural factors which encourage inappropriate and unnecessary pesticide use (e.g. direct or indirect subsidies, pro-pesticide biases in research, extension and training, or credit which is linked to pesticide use);
- strengthening and enforcing the pesticide regulatory framework to conform to best practice as laid out in the FAO Code of Conduct on the Distribution and Use of Pesticides;
- strengthening institutional capacity for IPM implementation (e.g. within research and extension services, NGOs or farmers' groups);
- building human capacity to apply 'knowledge intensive' farming practices (e.g. through farmer training); and
- ensuring appropriate private sector participation.

Private companies can strongly influence farmers' choice of pest management practice through their involvement in the supply, production and marketing chain. It is therefore particularly important to encourage private sector initiatives that promote IPM-based production (without compromising the commitment to reduce unnecessary agrochemical usage).

Progress is most likely under a national IPM programme that effectively integrates community-based field activities, policy, extension and research. It can also provide a consultative forum for relevant public and private stakeholders. However, considerable support may be required to ensure that the programme is meaningful:

- Is it based upon sound analysis of the effect of existing policies on pesticide use and IPM adoption rates? Are further economic/policy studies needed (e.g. of targeted adoption incentives)?
- Has it taken into consideration the non-market benefits of IPM (e.g. biodiversity conservation) as well as the health and other risks entailed in excessive pesticide use?
- Do those involved have adequate information and guidelines concerning IPM techniques, strategies, sources of advice, and finance?
- Is adequate information dissemination and consultation incorporated in the programme? (Farmers' families, consumers, NGOs and other main stakeholders should be involved.)
- Is the programme adequately and sustainably resourced? What options have been explored to supplement central funding sources (e.g. buy-in from district governments and farmers' groups, pesticide levies etc.)?

Where there are significant policy and institutional constraints to the implementation of an effective IPM strategy, a twin track approach should be adopted. The more upstream issues (e.g. regulatory reform and environmental policy) are often best tackled within a broader rural sector framework (e.g. within a National Environmental Action Plan, a National Strategy for Sustainable Development or support to a sector programme). This has the advantages of:

- increasing the level of domestic government ownership;
- bringing in other stakeholders and donors; and
- helping to ensure consistency with other related policies.

However, a greater intensity of effort can often be achieved through a stand-alone project which feeds into a wider policy programme.



DFID experience

- Various under the Crop Protection Research Programme (contact NR International)
- Research on environmental and sustainability issues in agricultural extension (AERDD - start 1995)
- Policies that work for sustainable agriculture (IIED - start 1996)
- Colombia: Coffee IPM (start 1994)
- India: A systems approach to sustainable insect pest management (start 1996)
- Bangladesh: INTERFISH project (start 1996)
- Malawi: Farming systems IPM (start 1995)
- Zimbabwe: IPM initiative tsetse control (start 1991)

NEDA experience

- China, south and south east Asia: FAO intercountry project on IPM in rice (start 1982)
- Asia: FAO IPM in vegetables (start 1992)
- Zanzibar: Strengthening plant protection (1983-1998)
- Sudan: Cotton IPM (1979-1995)

Centres of expertise

- CABI Bioscience
- Global IPM Facility
- Hannover University
- Imperial College
- Institute of Arable Crops Research
- NRI
- Pesticides Trust
- WAU, Crop Protection Centre - International

Integrated Pest Management *continued*

At the grassroots level, a successful approach has been to provide grant support for small scale IPM initiatives (e.g. pilot field trials and workshops) including those undertaken by NGOs and other intermediary groups. As well as extending awareness of the IPM approach, the demonstration factor and field data provided by pilot projects can act as an important stimulus for higher level reform.

Field projects must be implemented in a strongly decentralised and participatory manner. They should help farmers gain a practical understanding of agroecological factors and management practices which affect pest populations and behaviour on their own farms. Farmer Field Schools and other group-based informal education approaches enhance community ownership, sustainability and adaptability of IPM implementation. They can also help to reduce costs and stimulate farmer-to-farmer diffusion. This leads to a shared sense of purpose and an appreciation of the need to collaborate (this is important where control of pests depends upon collective action by adjacent farmers). Field level success is most likely where there is:

- ownership-creating support amongst farmers, NGOs and the extension services for IPM;
- a clear and urgent need for change (i.e. where pesticide use is spiralling, new or secondary pests are emerging and health risks are evident);
- commitment by all external agencies to collaborate with farmers to strengthen their ability to solve problems and adopt IPM practices; and
- demonstrable evidence that IPM approaches represent a profitable, low risk option for farmer households based on participatory trials on farmers' fields.

Probably the greatest challenge over the long term is to find forms of IPM which can achieve and maintain productivity gains in low-input, mixed farming systems. These are often threatened by a broad array of insects, weeds and diseases compounded by declining fertility. In such cases IPM will have to be incorporated into a more broadly focused sustainable resource management strategy which emphasises improved agro-ecological practices (including soil and water management, varietal selection, etc.) and keeps pests at acceptable levels, with minimal need for chemical pesticides.

It is therefore essential to ensure that IPM principles and practices are incorporated into all new agricultural development measures, rather than emerging later as a crisis response:

- Will sectoral development strategies (e.g. promotion of particular crops or practices) expose farmers to new pest problems?
- How are these to be countered? (Reliance on pesticide use should be discouraged.)
- What are the strategic research issues (e.g. the potential impact of biotechnology within an IPM framework)?
- How can long-term promotion of IPM be encouraged through the education system?

Key literature

- Agne, S., Fleisher, G., Jungbluth, F. & H. Weibel (1995) *Guidelines for Pesticide Policy Studies: A Framework for Analysing Economic and Political Factors of Pesticide Use in Developing Countries*. Pesticide Policy Project, Publication Series No. 1. Hannover: Hannover University.
- Farah, J. (1994) *Pesticides Policies in Developing Countries: Do They Encourage Excessive Use?* Discussion Paper No. 238. Washington, D.C.: IBRD/World Bank.
- Kenmore, P. (1996) 'Integrated Pest Management in Rice' in *Biotechnology and Integrated Pest Management* edited by G. J. Persley. Wallingford: CAB International.
- Pimentel, D. & H. Lehman (1993) (eds) *The Pesticide Question - Environment, Economics and Ethics*. New York & London: Chapman and Hall.
- Pretty, J.N. (1996) *Regenerating Agriculture: Policies and Practice for Sustainability and Self Reliance*. London: Earthscan Publications.
- Schillhorn van Veen, T.W., Forno, D., Joffe, S., Umali-Deininger, D.L. & S. Cooke (1997) *IPM: Strategies and Policies for Effective Implementation*. Environmentally Sustainable Development Studies and Monographs Series, No. 13. Washington, D.C.: World Bank.

Key Sheets are available on the Internet at: www.odi.org.uk/keysheets/
or through the websites of DFID and the Netherlands Ministry of Foreign Affairs

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