

**International trends in
Pesticide Risk Reduction
Focus on Health Risks**

Prepared for the
CSE Conference on Health and Environment

24 - 25 March 2006

Harry van der Wulp
Senior IPM Policy Officer
FAO Global IPM Facility

Concerns shaping international and national pest and pesticide management agendas (1):

Plant Protection:

- A broad need for sustainable responses to outbreaks of pests and diseases that are affecting agricultural production and food security.
- Unsustainable pesticide use tends to have averse effects on production.

Trade:

- Market access constraints related to pesticide residue requirements (related to food safety concerns) and phyto-sanitary issues.

Concerns shaping international and national pest and pesticide management agendas (2):

Health:

- Often high incidence of acute poisoning among farmers;
- Food safety concerns related to pesticide residues;
- Contamination of drinking water resources with pesticides;
- Chronic health effects (cancers, endocrine disruption, etc.)

Environment:

- Contamination of soils, and ground and surface water.
- Negative effects of pesticides on the natural resource base for agriculture (biodiversity, natural pest control mechanisms, pollinators, etc.) and wildlife.

Health risks

Health risks:

- Acute poisoning.
- Chronic health effects.
(e.g.: carcinogenic and reproductive effects)

Mode of action:

- Direct exposure while handling pesticides, treated crops or contaminated materials.
- Intake of pesticide residues with food and drinking water.



Acute Pesticide Poisoning among Female and Male Cotton Growers in India

Mancini et al, International Journal for Occupational Health (2005/11)

Season-long assessment in three villages (Andhra Pradesh), involving 50 female (mainly mixing and refilling tanks) and 47 male farmers (mainly pesticide application)

Self-monitoring\reporting after potential exposure:

Out of 323 reported events:

16.4 %	Asymptomatic
39%	Mild poisoning
38%	Moderate poisoning
6%	Severe poisoning (but none sought medical care)
10%	Three or more neurotoxic/systemic signs and symptoms associated with OPs (used in 47% of applications)

Acute Pesticide Poisoning among Female and Male Cotton Growers in India

Mancini et al, International Journal for Occupational Health (2005/11)

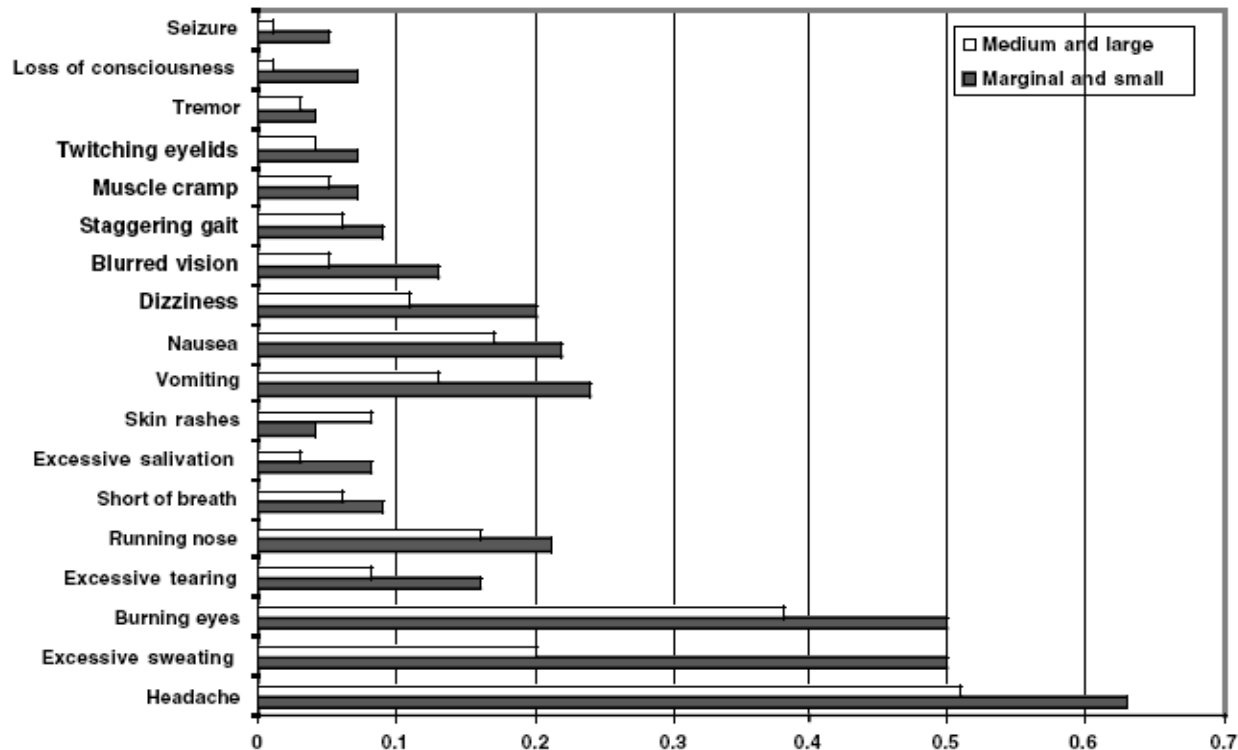


Figure 3—Distribution of signs and symptoms by land-holding class.

Principles for risk reduction related to pesticide use

1. Reduce pesticide use, where feasible.
2. Better selection of pesticides.
3. Ensure proper use of the selected products in line with international standards.

Principles for risk reduction related to pesticide use

- 1. Reduce pesticide use, where feasible.**
 - Eliminate pesticide overuse
 - Reduce pesticide dependency
 - Enhance access to non-chemical alternatives
 - IPM training and farmer education

Principles for risk reduction related to pesticide use

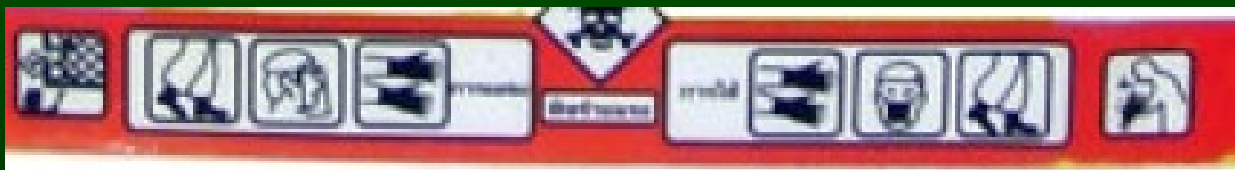
1. Better selection of pesticides.

- Ban or restrict the use of high risk products through regulatory control.
- Encourage selection of products in a manner that helps minimize risks.



Principles for risk reduction related to pesticide use

3. **Ensure proper use of the selected products in line with international standards.**
 - Farmer education \ training
 - Access to appropriate protective gear



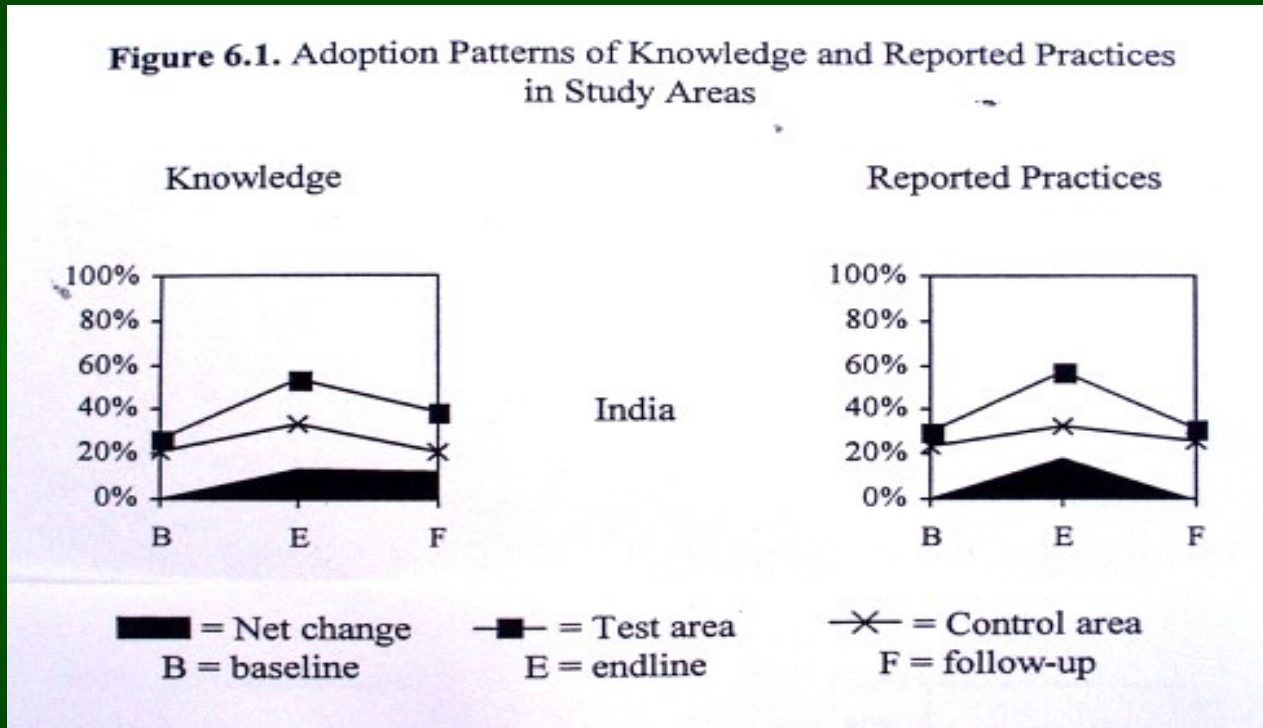
Principles for risk reduction related to pesticide use

1. Reduce pesticide use, where feasible.
2. Better selection of pesticides.
3. Ensure proper use of the selected products in line with international standards.



Novartis (now Syngenta)

Safe and effective use of crop protection products in developing countries
7-year-long research programme in India, Mexico and Zimbabwe
Published in 2000



Change in practices as a result of training is not sustained after training.

Change in knowledge does not necessarily lead to sustained change in practice.

Novartis (now Syngenta)

Safe and effective use of crop protection products in developing countries
7-year-long research programme in India, Mexico and Zimbabwe
Published in 2000

“The over-riding lesson of the study in India is that in a situation of economic deprivation, economic gains will take precedence over safety and health gains among the concerned groups”.

“A farmer will not spend money on protective gear. If it is given free or at a subsidized rate, he might use it if it does not hamper productivity. If the gear causes sufficient discomfort to hamper work, however, he will discard it”.

Novartis (now Syngenta)

End Conclusion of Research Programme:

“All available experience indicates that there are limits to the extent to which changes will be adopted within a generation. Even the best and most sustained efforts run into the paradoxical situation that not everyone who can adopt relatively simple modifications in behaviour will actually do so, even when it is shown that the changes are in the person’s long-term best interest.

Given that, any pesticide manufacturer that cannot guarantee the safe handling and use of its toxicity class 1A and 1B products should withdraw those products from the market”.

**International Agreements and Policies
to
Reduce Risks related to Pesticide use**

FAO

International Code of Conduct on the Distribution and Use of Pesticides

- Adopted in 1985, revised in 2002
- Specifies responsibilities of governments, pesticide industry and other stakeholders - Voluntary
- Addresses the need for a cooperative effort to promote practices that minimize potential health and environmental risks associated with pesticides, while ensuring their effective use.
- Specifically addresses: Regulatory and technical requirements; reducing health and environmental risks; testing of pesticides; availability and use; distribution and trade, information exchange; labelling, packaging, storage and disposal; advertising; monitoring and observance of the Code.

International Code of Conduct on the Distribution and Use of Pesticides

Articles related to reducing reliance on pesticide (1)

- 3.7** Concerted efforts should be made by governments to develop and promote the use of IPM. Furthermore, lending institutions, donor agencies and governments should support the development of national IPM policies and improved IPM concepts and practices. These should be based on scientific and other strategies that promote increased participation of farmers (including women's groups), extension agents and on-farm researchers.
- 3.8** All stakeholders, including farmers and farmer associations, IPM researchers, extension agents, crop consultants, food industry, manufacturers of biological and chemical pesticides and application equipment, environmentalists and representatives of consumer groups should play a proactive role in the development and promotion of IPM.

International Code of Conduct on the Distribution and Use of Pesticides

Articles related to reducing reliance on pesticide (2)

- 3.9** Governments, with the support of relevant international and regional organizations, should encourage and promote research on, and the development of, alternatives posing fewer risks: biological control agents and techniques, non-chemical pesticides and pesticides that are, as far as possible or desirable, target-specific, that degrade into innocuous constituent parts or metabolites after use and are of low risk to humans and the environment.

International Code of Conduct on the Distribution and Use of Pesticides

Articles related to high risk pesticides

- 3.5** Pesticides whose handling and application require the use of personal protective equipment that is uncomfortable, expensive or not readily available should be avoided, especially in the case of small-scale users in tropical climates. Preference should be given to pesticides that require inexpensive personal protective and application equipment and to procedures appropriate to the conditions under which the pesticides are to be handled and used.

- 7.5** Prohibition of the importation, sale and purchase of highly toxic and hazardous products, such as those included in WHO classes Ia and Ib, may be desirable if other control measures or good marketing practices are insufficient to ensure that the product can be handled with acceptable risk to the user.

FAO

Internal Policy (Field Circular 8/92 – on Pesticides Selection and Use in Field Projects)

“The presence of pests does not automatically require control measures, as damage may be insignificant. When plant protection measures are deemed necessary, a system of non-chemical pest methodologies should be considered before a decision is taken to use pesticides. Suitable pest control methods should be used in an integrated manner and pesticides should be used on an as-needed basis only and as a last resort component of an IPM strategy”.

“Pesticide formulations that fall in WHO Hazard Class I should not be used by small-scale farmers or untrained and unprotected workers. Pesticide formulations in Class II should only be provided if it can be demonstrated that users adhere to the necessary precautionary measures”.

World Bank

Safeguard Policy on Pest Management (OP 4.09)

In assisting borrowers to manage pests that affect either agriculture or public health, the Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. In Bank-financed agriculture operations, pest populations are normally controlled through IPM approaches, such as biological control, cultural practices, and the development and use of crop varieties that are resistant or tolerant to the pest.

The Bank does not finance formulated products that fall in WHO classes IA and IB, or formulations of products in Class II, if (a) the country lacks restrictions on their distribution and use; or (b) they are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly.

Multilateral Agreements

aimed at reducing health and environmental risk associated with pesticide use

- Rotterdam Convention PIC procedure
- Stockholm Convention POP pesticides
- Montreal Protocol Methyl bromide

Relevant national/regional developments

- Review of registered pesticides - EU, USA, Canada
http://europa.eu.int/comm/food/plant/protection/evaluation/index_en.htm
http://www.epa.gov/oppsrrd1/registration_review/design.htm#elements
- Reassessment of MRLs, taking into consideration cumulative risks and vulnerable groups – USA
<http://www.epa.gov/pesticides/cumulative>
- Comparative risk assessment and substitution approach to pesticide registration - E.g.: Sweden, Norway

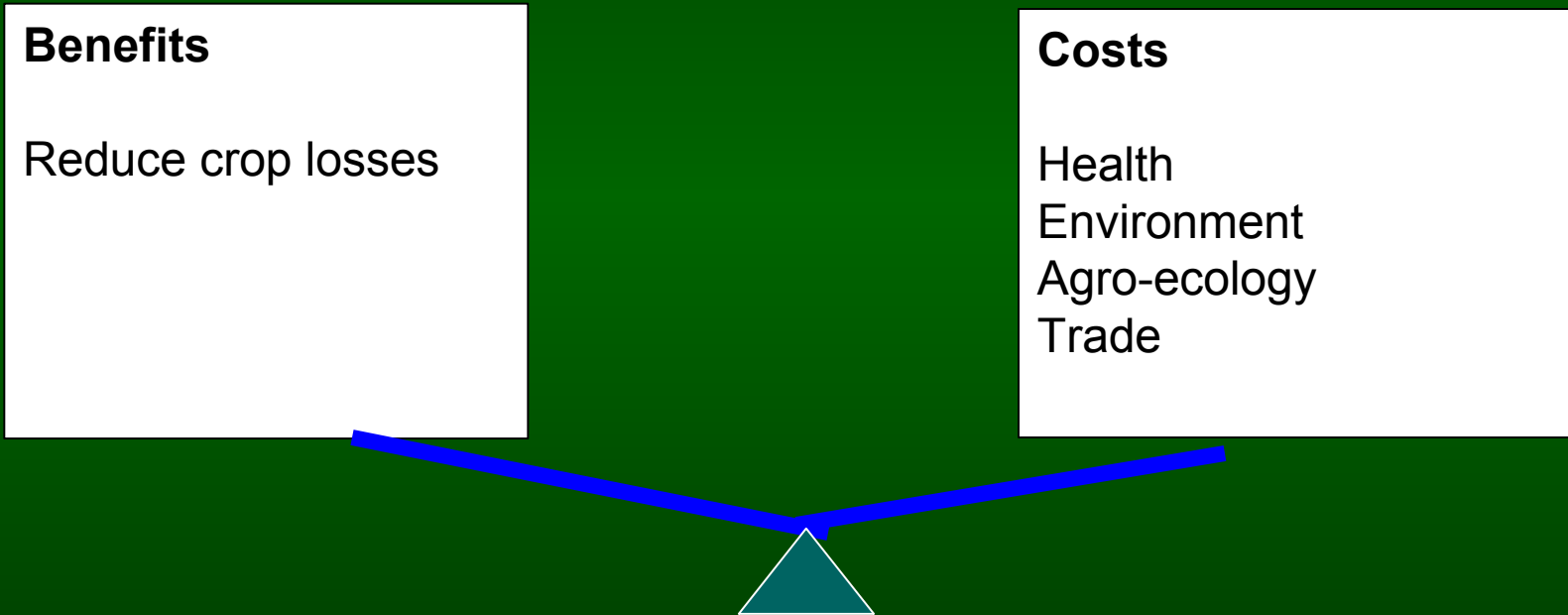
Economic factors related to pesticide use

Benefits

Reduce crop losses

Costs

Health
Environment
Agro-ecology
Trade



Economic factors related to pesticide use

Benefits

Reduce crop losses

Costs

Health
Environment
Agro-ecology
Trade



Role of government

Secure agricultural production - Reduce pesticide costs
Finding a balance

Common causes of imbalances..... and how these could be corrected

Benefits of pesticides

Reduce crop losses

The viability of alternative pest management approaches is often not fully understood.

Consequently, the benefits of pesticide use are often **over-estimated**

Demonstrate effectiveness and economic viability of alternatives (IPM, biological control) and potential for pesticide rationalisation/reduction (economic analysis).

Common causes of imbalances..... and how these could be corrected

Magnitude of social costs of pesticide use is often not fully understood and consequently **under-estimated**

Costs

Health
Environment
Agro-ecology
Trade

Better assessment of social costs:
Research, surveys, data-collection to quantify social costs. E.g.: residue testing of crops; monitoring of poisoning incidences; assessment of environmental impact

Use policy tools

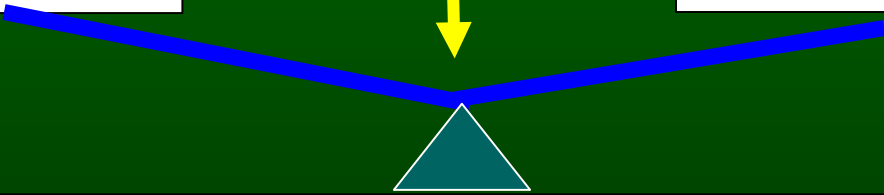
research
resource allocation
financial tools

Benefits

Reduce crop losses

Costs

Health
Environment
Agro-ecology
Trade



Role of government

Secure agricultural production - Reduce pesticide costs
Finding a balance

Policy tools to get it right

Available Tools

- Regulatory control
- Pesticide reduction strategies
- Enhancing access to non-chemical pest management products
- Application of financial instruments to provide incentives/disincentives for certain practices/products
- Awareness raising programmes
- Promotion of IPM in extension programmes (resource allocation)
- IPM research (resource allocation)
- GAP schemes

Remember.....

.....Change of field practices is key

- Reducing exposure of farmers
- Reducing pesticide residue levels on crops
- Reducing water contamination



All need changes in production practice



Such objectives need to be supported by measures that enable farmers to produce differently !!!

Key: Training and access to alternative strategies and inputs

Thank You