Risk reduction: opportunities and challenges

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01 /Background
The evolution of environmental issue and challenge

Today’s understanding and perception of environmental challenges are changing:

no longer can they be seen as independent, simple and specific issues. Rather, the challenges are increasingly broad-ranging and complex, part of a web of linked and interdependent functions provided by different natural and social systems.

(From: Soer 2010 European Environmental Agency)
01 /Background
The evolution of environmental issue and challenge

- **1970s/1980s (until today)**
  - Reduce emissions of specific pollutants into air, water, soil; improve wastewater treatment.
  - Protect selected species and habitats.

- **1990s (until today)**
  - Recycle waste; reduce waste generation through prevention approach.
  - Establish ecological networks; manage invasive species; reduce pressure from agriculture, forestry, fisheries and transport.
  - Reduce greenhouse gas emissions from industry, transport and agriculture; increase share of renewable energy.

- **2000s (until today)**
  - Reduce people’s combined exposure to harmful pollutants and other stressors; better link human and ecosystem health.
  - Improve efficiency of resource use (such as materials, food, energy, water) and consumption in the face of increasing demand, reduced resources and competition; cleaner production.
  - Establish economy-wide approaches, provide behavioural incentives and balance drivers of consumption; share global burdens of mitigation and adaptation.

**Increasing degree of complexity**

(SOURCE: EEA)
01 /Background
The challenge of pesticide risk reduction

Agricultural pesticides are associated with several environmental and human health risks during the different stages of their life-cycle.

In order to help limiting pesticide risks the European Commission set out some very specific objectives on the sustainable use of pesticides.
02 /The Gap

**Risk Assessors:**
- Real risk
- Exposure models
- Professionals
- Mean values
- Projected behavior
- Good Agricultural Practices
- Focus on individual aspects

**Risk Managers:**
- Perceived risk
- Real life activities
- General population
- Diversity of practices
- Human interference
- Specific practices
- Complex interactions
The role that can be played by SUD

**Risk Assessors:**
- Real risk
- Exposure models
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**SUD**
- Training
- Requirements for sales of PPP
- Information and awareness
- Equipment
- Protect specific areas
- Handling of pesticides
- IPM

**Risk Managers:**
- Perceived risk
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02 /The Gap
SUD can provide answers if:

> Measures are pragmatic and applicable
  > New requirements for users produce a real risk reduction
> New practices produce benefits also for farmers
  > Appropriate incentives are in place
> Training, information and awareness raising are based on scientific evaluations and recommendations

A PARTICIPATORY, MULTI-STAKEHOLDER PROCESS IS NEEDED FOR THE IMPLEMENTATION
03 /Background
The challenge of pesticide risk reduction: EU Objective

> to minimise the hazards and risks to health and environment from the use of pesticides.
  > to improve controls on the use and distribution of pesticides.
  > to reduce the levels of harmful active substances, in particular by replacing the most dangerous by safer (including non-chemical alternatives.
  > to encourage the use of low-input or pesticide-free crop farming.
> to establish a transparent system for reporting and monitoring progress including the development of appropriate indicators.
The Sustainable Use Directive: OPERA analysis

OPERA Research Centre has initiated an EU-wide consultation, drawing on experts from the fields of agriculture, industry, trade, academia, environment and consumer protection, to produce a document that supports the transposition process of the Directive and the drafting of NAPs.

Proposing of a package of practical and pragmatic risk reduction measures together with a system of indicators to measure progress in meeting the objectives of the SUD.
03 /Background
The challenge of pesticide risk reduction:

**The Sustainable Use Directive**

The EU Directive 128/2009 requires Member States to develop a legislative framework and National Action Plan (NAP) that includes the aim of reducing the potential risk associated with pesticide use.

**Key Objective of the activity**
To assist authorities in defining the content of NAP and system to measure step-by-step improvements from an initial assessment, towards the final objective.
04 /Multifunctional Landscapes
why good field margins is important and how can it be achieved

Our recommendation provides information on:
> Definition
> The Functions of field margins:
   > Enhancing biodiversity
   > Pesticide buffer
   > Nutrient retention
> The EU legal framework
> Financial aid and assistance required for their setting up
04 /Multifunctional Landscapes

Legal compliance:
Member States must take measures to protect the aquatic environment and drinking water

(Directive EC 128/2009)

Multifunctionality:
Creating buffer zones, can benefit
  > soil
  > water protection
  > natural fertilization
  > biological crop protection
  > biodiversity
MULTIPLE BENEFITS of field margins = OPPORTUNITY for agriculture and the environment

- Avoid erosive soil loss
- Protect water
- Reduction of pollution by pesticides from spray drift
  - Increases earthworms populations
  - Attract arthropods
- Help birds and small animals
  - Enable carbon reduction
Land and water management practices are of primer importance for satisfying the needs of agriculture and ecosystems.
THE RECOMMENDATION COVERS THE FOLLOWING SUBJECTS:

> Why on farm water management is important
  > How do PPPs reach the water bodies
    > Point source pollution
  > Evolution of bio purification systems
> Existing types of bio purification system
  > Advantages and disadvantages
> Relevant requirements in the EU legislation
05 /Bio purification systems
why on farm water management is important and how it can be achieved

**Legal compliance:**
SUD is the framework for measures dealing with diffuse and point source pollution to protect the environment

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Advantages of Bio-purification Systems = OPPORTUNITY

> Eliminate point source pollution
> Economic and simple constructions
> Safeguard human and animal health on farm
> Safeguard biodiversity and beneficial organisms
> Ability to treat large volumes of contaminated water
> Need of minimum maintenance
The RECOMMENDATION PROVIDES INFORMATION on:

> European Agriculture and Plant Protection
  > EU legislation & IP
> IPM concept & its application
> How to achieve IPM implementation as required by SUD
> Resources and actions to achieve a successful implementation of IPM principles
  > Evolution of IPM practices at farm level
> Limitations in implementing IPM
> Regulatory initiatives recommended to be taken into consideration for a successful implementation of IPM
05 /IPM
seen from the perspective of SUD Objectives
(to be published soon !)

The 8 POINTS of the Annex recall the adoption of:

1. Agronomic measures
2. Monitoring
3. Threshold levels
4. Specificity of application
5. Preference for non-chemicals
6. If providing satisfactory pest control
7. Resistance Management and
8. Check of results in relation with the applied measures
IPM requires certain resources for implementation related to knowledge transfer and to production methods.

Knowledge transfer = OPPORTUNITY FOR DEVELOPMENT

> Training
> Information
> Research

* Training is explicitly required by the SUD for the whole complex of measures, but it appears particularly relevant for IPM
06 / Indicators and targets for the Sustainable Use Directive

DEFINING THE PROBLEM:

> Indicators and Targets need to capture information, not related to the volume of pesticide used, but on impact in reducing the risk following the implementation of National Action Plans (NAP)

> Indicators and targets assess performance of NAP

> Information on risk reduction at European level will be completed with data collected for the future harmonised indicators
In implementing the SUD, it is important to clearly define goals to reduce risk, and then measures to reach these goals. The mitigation measures are linked to the risk indicators selected. Therefore, risk indicators and mitigating measures - have to be addressed in parallel.

Any set of indicators should reflect a minimum number of economic, social and environmental aspects.
The toolbox stepwise approach

1. Define goal in the NAP
2. Identification of the possible mitigation measures which can be applied
3. Identification of the associated indicators
4. Set up of risk reduction targets based on the indicators chosen
5. Goals should be set in relation to the policy priorities in the MS to address the risks identified prior to the application of the NAP
6. The targets for each measure shall vary from MS to MS, even if the overall quantitative target of the plan is the same.

Redefine goals after implementation
Procedure to establish quantitative risk reduction targets:

> Give benchmark values over time to the indicators selected to monitor risk reduction.

> Use existing monitoring data for setting the baseline, such as: the current level of residues in water, number of trained farmers, areas of buffer zones already in place and implementation of best agricultural practices etc.

The targets suggested in the toolbox are a hypothetical example of how MS’s may consider achieving a certain level of risk reduction through the measure taken and its corresponding indicator.
The toolbox of practical risk indicators proposed by OPERA aim to measure the impact of NAP on:

> Environment - water; soil and biodiversity
> People - consumers; bystanders and operators
  > Social issues
  > Economic costs

A mix of indicators from the four categories it is recommended
NEW LEGAL REQUIREMENTS POSE A SERIES OF **CHALLENGES** to:
> Farmers to adapt their practices
> Industry to develop new solutions
> Authorities to implement legal text
> Food chain to take into account developments

**OPPORTUNITIES ARE CREATED FOR:**
> Farmers to improve their practices and knowledge
> Industry to put in practice their research
> Authorities to communicate to society risk reduction
> Food chain to boost consumer confidence