



Better Training for Safer Food *Initiative*

Ettore Capri

**Minimisation of
side effects of
PPPs for the
environment**

Lecture 07



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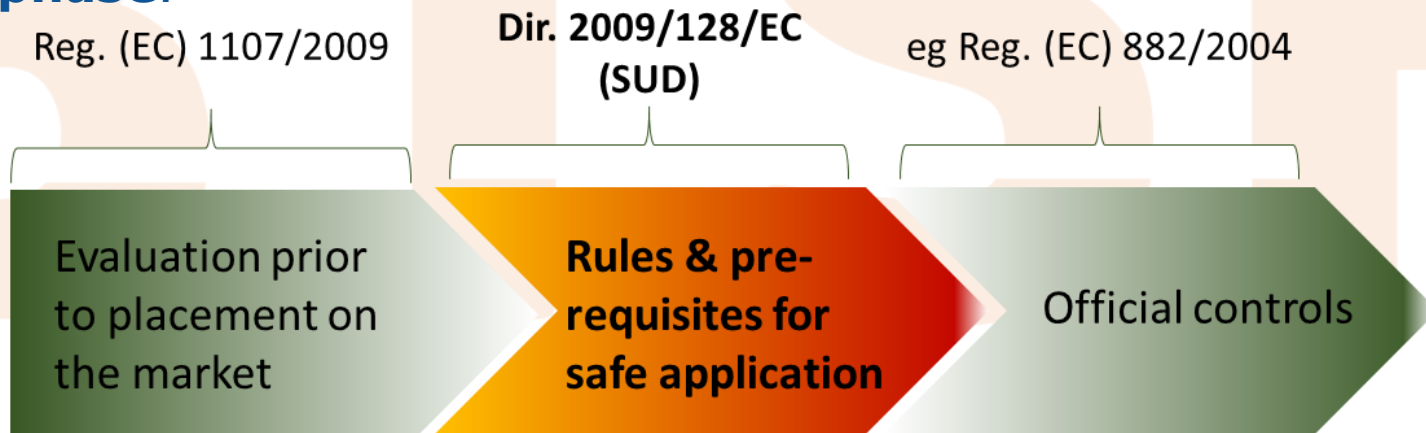
Lecture 7

Minimisation Of Side Effects Of PPPs For The Environment

- Comparative assessment of PPPs at user level
- Emergency actions to protect human health and/or the environment
- Special care of protected areas established under Art. 6 and 7 of Directive 2000/60/E

Directive 2009/128/EC – Sustainable Use Directive

The novelty that the Directive (EC) 128/2009, the 'so-called' Sustainable Use Directive (SUD) brings in the European regulatory framework related to plant protection products is that it focuses on their use phase.



Relevant concepts in SUD: HAZARD, RISK, GEO CONTEXT influence the RISK ANALYSIS, PRAGMATISM





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Comparative assessment of PPPs at user level General criteria

Comparative assessment of PPPs at user level

General criteria

Directive Principle - Article 5 annex 1

"The pesticides applied shall be as specific as possible for the target and shall have the least side effects on human health, non-target organisms and the environment."

As registration is generally based on absolute criteria, there may be scope for further selection from among the approved products, favouring those that are least harmful to health and the environment



Comparative assessment of PPPs at user level General criteria

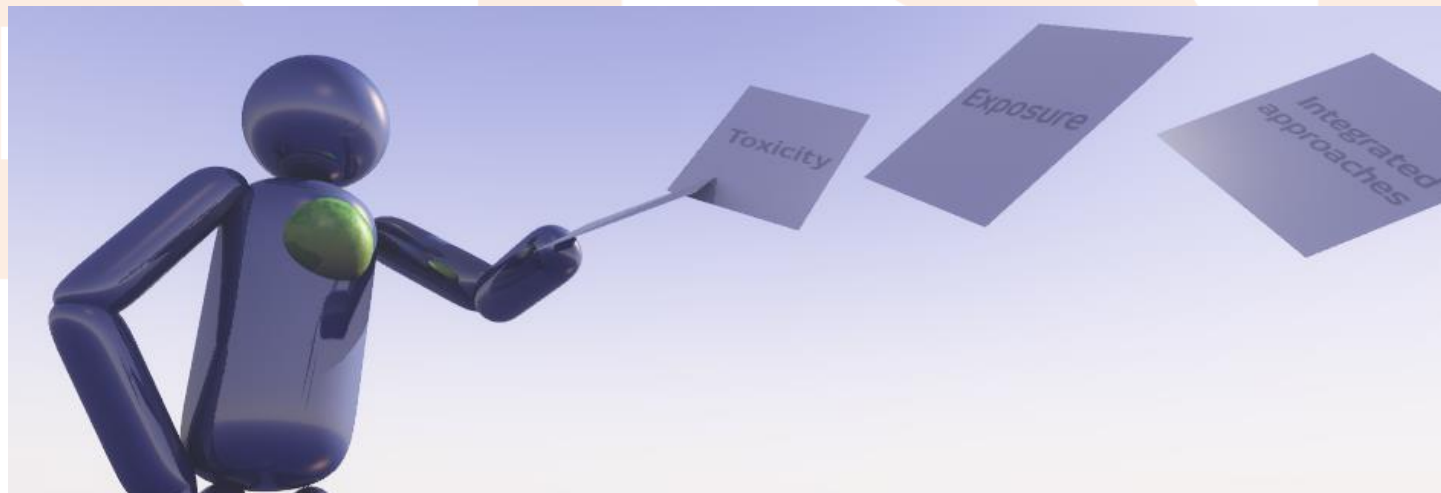
Preference should be given to pesticide

Target specific

Degrade rapidly – low persistence

Low risk to human

Low risk to environment (fate in soil, water and air)



Comparative assessment of PPPs at user level General criteria and step wise approach

- ◆ Information should be searched on non-chemical control or prevention method available

There <<are /are not >> non-chemical control or other prevention methods available in your MS to control <<all pests/some pests>>

- ◆ IPM programs

- ◆ Products label enable to make an assessment at the point of selection for use



An approach based only on hazard information available in the label alert the user to the presence of a hazard and the need to avoid exposures and risks arising from it, but might not secure real changes in pesticide use.

Comparative assessment of PPPs at user level Data source

Selecting pesticides requires information

- **Label**
- **Eu Pesticide data base**
- **EPPO lists of existing databases in Europe**

There are very few databases on side-effects of plant protection compounds available

- **IPM impact** <http://www.ipmimpact.com>
- **The Pest Select Database** [http://www.iobc-wprs.org/ip_ipm/IOBC Pesticide Side Effect Database.html](http://www.iobc-wprs.org/ip_ipm/IOBC_Pesticide_Side_Effect_Database.html)
- **THE PPDB Pesticide Properties Database** <http://sitem.herts.ac.uk/aeru/ppdb/en/index.htm>
- **Pesticideinfo.org** [Pesticide Action Network North America](http://www.pesticideinfo.org)

Comparative assessment of PPPs at user level

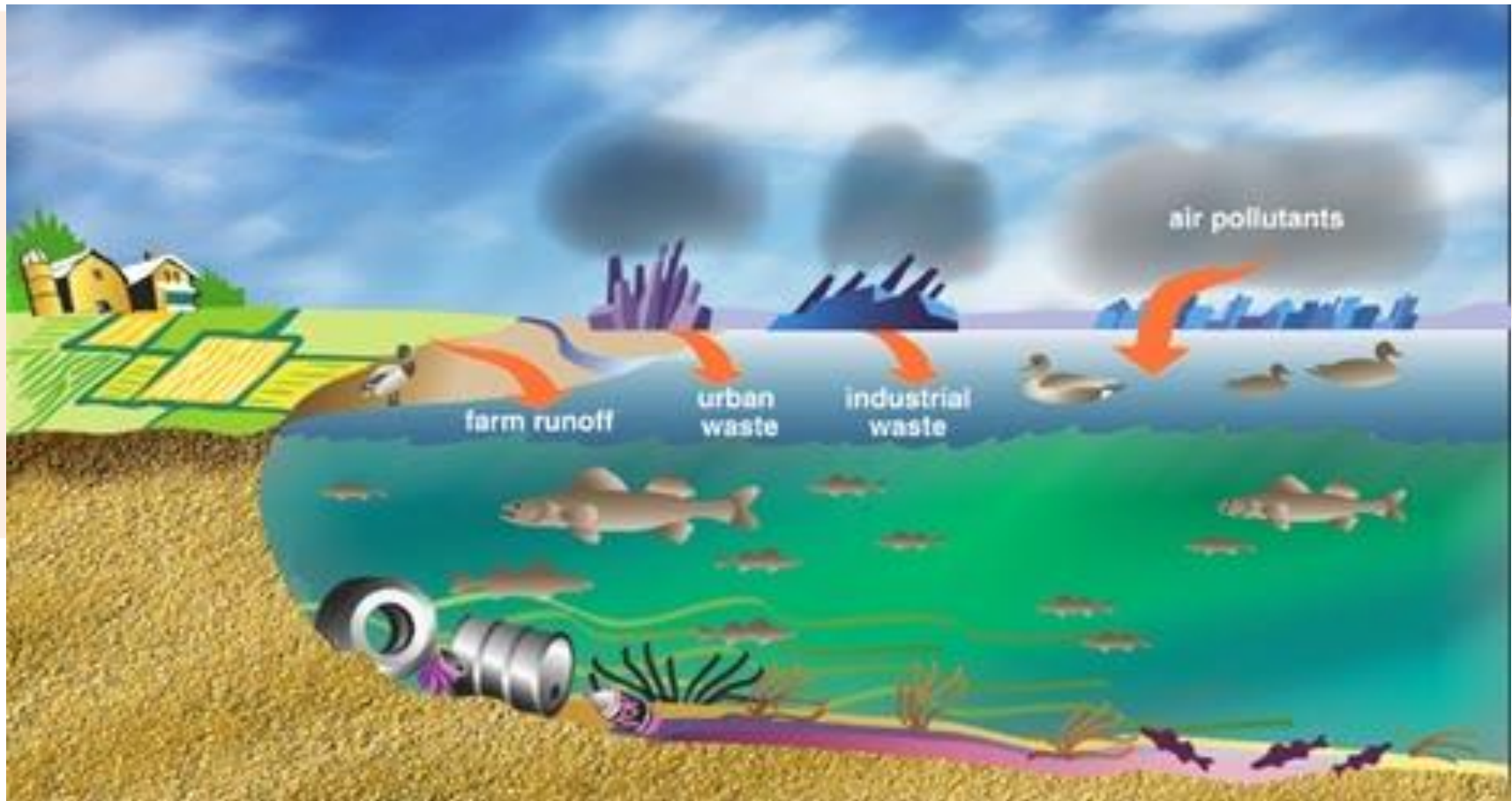
Data source

Results in practical situations may differ due to multiple factors

- number of treatments,
- amount of active ingredient applied,
- instability of climatic condition,
- stage of the crop,
- type of substrate,
- type of distribution
- dose
- frequency of application
- operator behaviour

Comparative assessment of PPPs at user level Data source

... and complexity of the eco-systems



Comparative assessment of PPPs at user level Tools

The risk assessment for plant protection products is very complex, considering a range of situations and exposure patterns, critical effects, and organisms.

Different strategies in risk management have been proposed in the last few years

Supporting Decision Tools based on indicators are commonly the first, most basic, tools for analyzing change in a system, and evaluate different pesticide strategy

Comparative assessment of PPPs at user level Tools

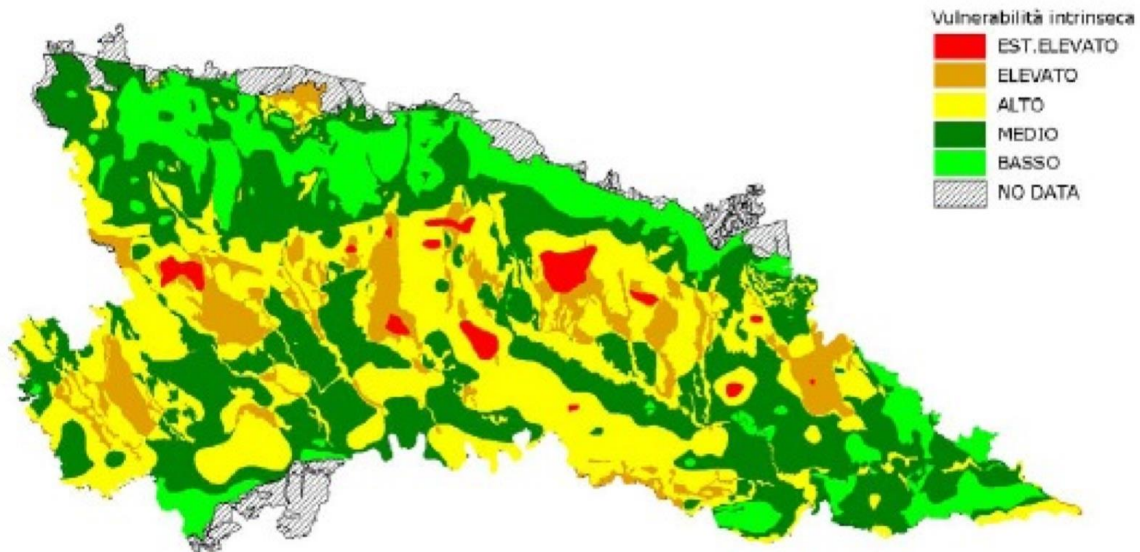
Based on the level of complexity, 3 broad typologies of decision supporting systems (DSS) can be identified and related to mitigation practice:

- **Ranking user friendly assessment tools** (simple chemical indicators, fugacity model, partition coefficient and exposure end-points)
- **Exposure-toxicity ratio (ETR) approach** (TER, exposure vs toxicity, risk indicator such as EPRIP)
- **Modelling** (metamodels, GIS based, deterministic vs probabilistics)
-



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Vulnerability soil maps



Emergency Actions to protect human health and/or the environment

Emergency actions

In case of pesticide exposure and accidental spills follow the Material Safety Data Sheet.

List general conducts per each situation occurring.

Develop strategies for the management

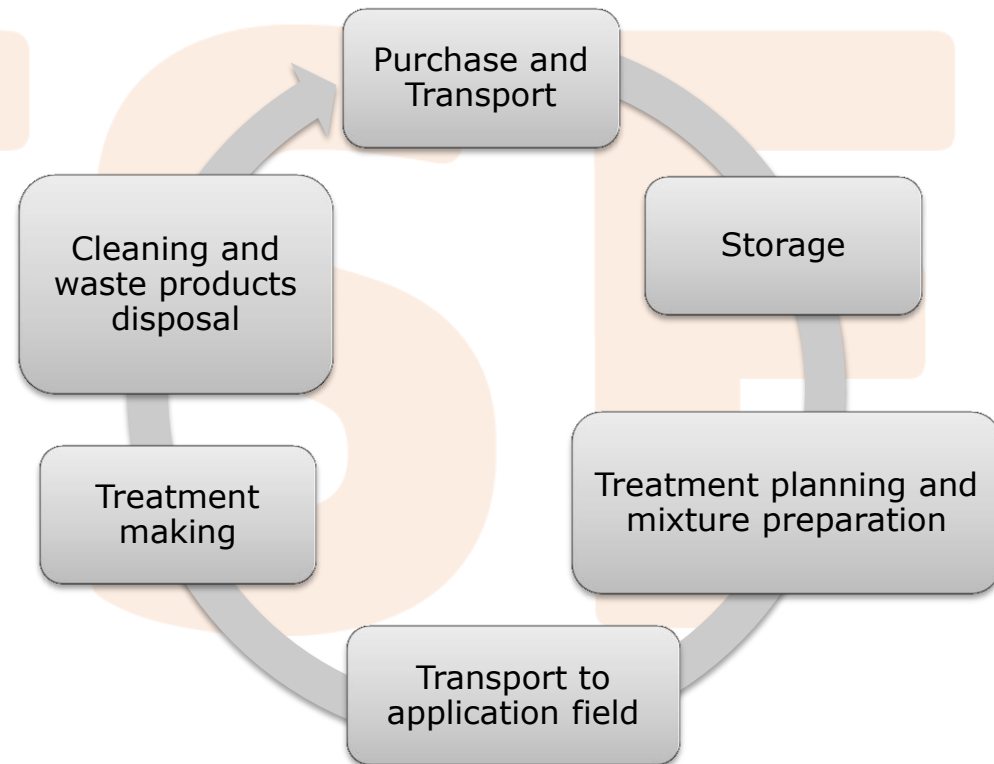
Create the environmental conditions for the risk management

Check the end-user acceptance through their participation and engagement.

Emergency Actions to protect human health and/or the environment

The working routine often implies an excessive confidence

It is essential that operators wear Personal Protective Equipment (**PPE**), specific for PPP exposure, during **all activities** where they may come into contact, directly or indirectly with the products.



Need of **GUIDELINE** to protect human health and/or the environment

Scientific knowledge represents one of the key aspects for the design of new policies and the review of the existing one.

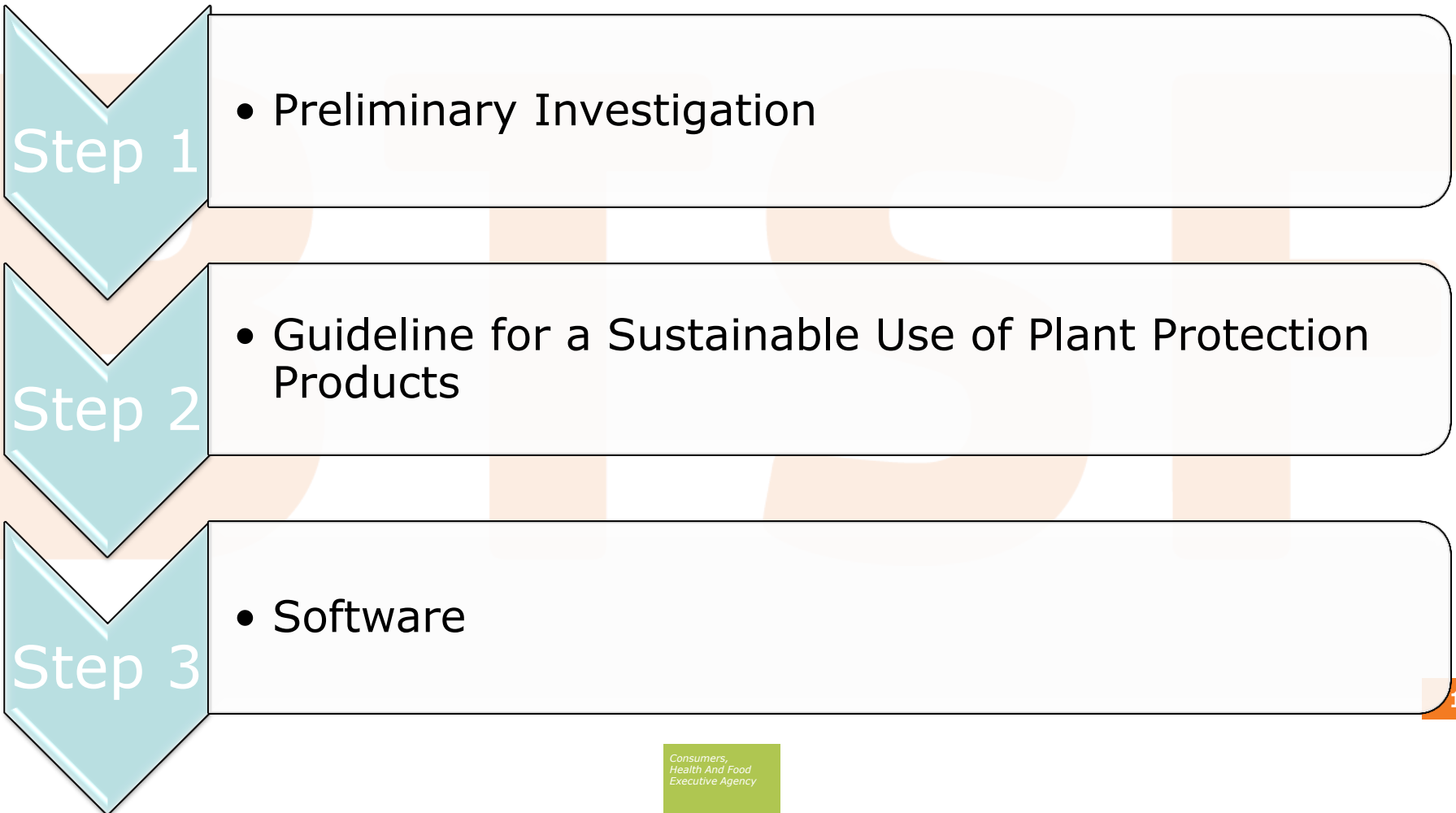
The collaboration between different stakeholders helps to develop common views and to achieve solutions for practical and effective techniques, and increase the quality of the production and safe food with sustainable agriculture.

The European Commission, in the Sixth Environmental Action Programme, underline this consideration and clearly ask for collaborative action and planning among different range of actors for a common understanding and interaction with decision-makers.



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Three steps to develop a new tool to support the training



Documents reference : what was already been set up at both national and European level

Documents developed under the Project Life "Training the Operators to Prevent Pollution from Point Sources" named TOPPS (<http://www.topps-life.org/web/page.asp>.)

European legislation, national and local such as:

"The correct use of plant protection products. Guide to the license for the purchase of plant protection products in the Emilia-Romagna

"(<http://www.ermesagricoltura.it/Servizio-fitosanitario/Difesa-e-diserbodelle-piante/Guida-al-patentino-per-i-prodotti-PPP> / The-correct-use-of-products-plant Protection)

Italian Guideline for SUD (<http://www.agricoltura-responsabile.it>)

Linee guida per un uso sostenibile dei prodotti fitosanitari



Sicurezza Ambiente Salute Agricoltura

Syngenta Crop Protection S.p.A. - Regione Emilia Romagna - Servizio Fitosanitario, Università Cattolica del Sacro Cuore di Piacenza - Hortia srl



capitolo 01 **Acquisto e Trasporto**

selezionare più risposte selezionare una sola risposta

Profilo

Chi esegue il trasporto Domanda 1

Rivenditore Trasportatore terzo Azienda agricola

Quanti trasporti vengono effettuati in un anno?

Meno di 3 Tra 3 e 5 Più di 5

È a conoscenza del fatto che con l'acquisto, ogni responsabilità in ordine a trasporto, conservazione, utilizzo e manipolazione dei prodotti fitosanitari viene totalmente trasferita dal venditore all'acquirente?

Sì No

1.1. Pianificazione

Aspetti strutturali Domanda 2

Il trasporto dei prodotti fitosanitari è effettuato con veicolo affidabile e con una adeguata capacità di carico

Il veicolo è dotato di piccoli contenitori in grado di contenere eventuali perdite

Il veicolo è privo di spigoli o sporganze taglienti ed è in grado di contenere eventuali perdite

Il veicolo è dotato di adeguati Dispositivi di Protezione Individuale (DPI) e dispositivi per prevenire incidenti, da utilizzare in caso di eventuali incidenti o fuoriuscite di prodotto:

Estintore Palla Scopa

Sacchi o sacco impermeabile di raccolta Materiale assorbente Copri tamburo

Materiali Domanda 3

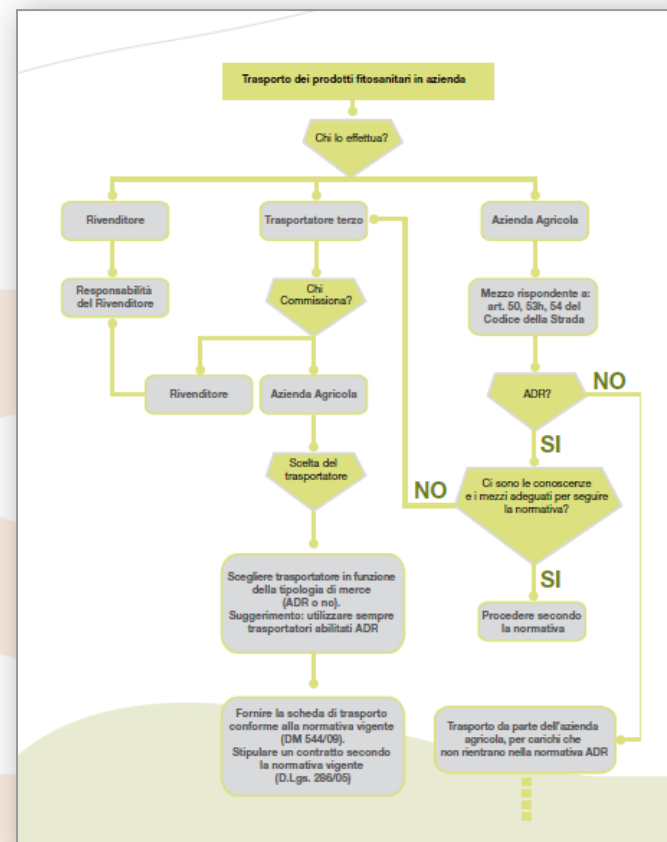
vengono messi a disposizione:

Scheda prevista dalla normativa vigente, Documento di trasporto (DOT) merce

Scheda prevista dalla normativa ADR in caso di trasporto di merci pericolose

Documento di trasporto: "trasporto non superiore ai limiti di esenzione prescritti qualora il trasporto non ricada nell'ambito della normativa ADR"

Prodotti classificati come Molto Tossici (T+), Tossici (T) e Nocivi (N) viene consegnato solo in cassetta (SDS), qualora non siano già disponibili in azienda



Linee guida per un uso sostenibile dei prodotti fitosanitari

Home La mia Home **Aziende** Informazioni Linee guida Contatti About

CHECKLIST RESULTS

Indicatore complessivo 11,89

Capitolo 1 15,00 *Acquisto e trasporto*

Capitolo 2 3,90 *Stoccaggio dei prodotti fitosanitari*

Capitolo 3 9,32 *Pianificazione dei trattamenti e preparazione della miscela*

Capitolo 4 15,00 *Trasferimento in campo*

Capitolo 5 7,71 *Esecuzione del trattamento*

Capitolo 6 18,27 *Operazioni successive al trattamento*

Torna alla checklist | Suggerimenti | Report sintetico | Report esteso | Esporta i dati

2011 - Informatica Ambientale srl

Home La mia Home Aziende Informazioni Linee guida Contatti About
Home La mia Home Aziende Informazioni Introduzione Contatti Privacy Note legali
Capitolo 1
Capitolo 2

Linee guida per un uso sostenibile dei prodotti fitosanitari

Scopo del lavoro

Pianificazione del trattamento e preparazione della miscela

Punti critici e priorità

1. Identificare le aree colturali da trattare e le condizioni climatiche, meteorologiche e del suolo che influenzano l'efficacia del trattamento.

2. La pianificazione del trattamento e la preparazione della miscela devono essere basate sulle informazioni fornite dal venditore e sul manuale d'uso del prodotto.

3. La preparazione della miscela deve essere effettuata in un luogo sicuro e con le appropriate precauzioni di sicurezza.

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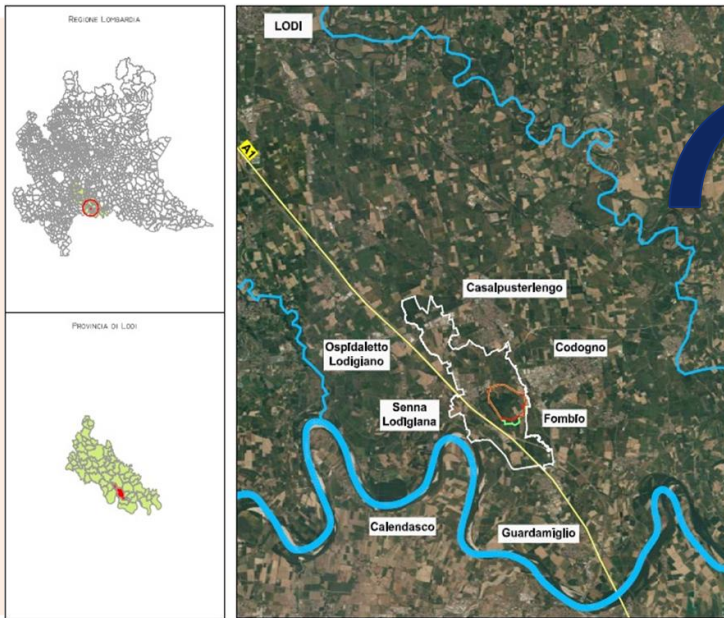
10. La preparazione della miscela deve essere effettuata in un luogo sicuro e con le appropriate precauzioni di sicurezza.

Special care care of protected areas established under Art. 6 and 7 of Directive 2000/60/E



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Special care care of protected areas established under Art. 6 and 7 of Directive 2000/60/E



Special care of protected areas established under Art. 6 and 7 of Directive 2000/60/E

The register of protected areas required under Article 6 and 7 of Directive 2000/60/E include the following types of protected areas:

- (i) areas designated for the abstraction of water intended for human consumption (Article 7);**
- (ii) areas designated for the protection of economically significant aquatic species;**
- (iii) bodies of water designated as recreational waters, including areas designated as bathing waters under Directive 76/160/EEC;**

Special care of protected areas established under Art. 6 and 7 of Directive 2000/60/E

- (iv) nutrient-sensitive areas, including areas designated as vulnerable zones under Directive 91/676/EEC and areas designated as sensitive areas under Directive 91/271/EEC; and**
- (v) areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor their protection, including relevant Natura 2000 sites designated under Directive 92/43/EEC (1) and Directive 79/409/EEC (2).**

Special care of protected areas established under Art. 6 and 7 of Directive 2000/60/E

The possible actions depends on specific NAPs and may be:

- Priority given to biological pest control measures, or use of non-chemical alternatives (mechanical, physical control methods)
- Limitations on the use of pesticides that are dangerous for the aquatic environment and of the use of other products found on surface water and groundwater through environmental monitoring activities.
- Use of low-risk products as defined by Regulation (EC) No 1107/09
- Employing spraying equipment and methods which minimize pesticide leakage in the environment

Special care of protected areas established under Art. 6 and 7 of Directive 2000/60/E

- **Selection of ad hoc criteria to favour, within each site, the funding of organic-farming pest control techniques complying, and of voluntary IPM farming. Limit the use of pesticides with a high tendency to percolate**
- **Actions supporting the creation of hedges and buffer strips of appropriate width, their maintenance and their restoration, or natural recolonisation by plant species typical of riverside strips and by other species forming habitats of Community interest**
- **The general public must be notified of any PPP application by signs indicating the active substance used, the spraying date and the duration of the prohibition to enter the treated area.**



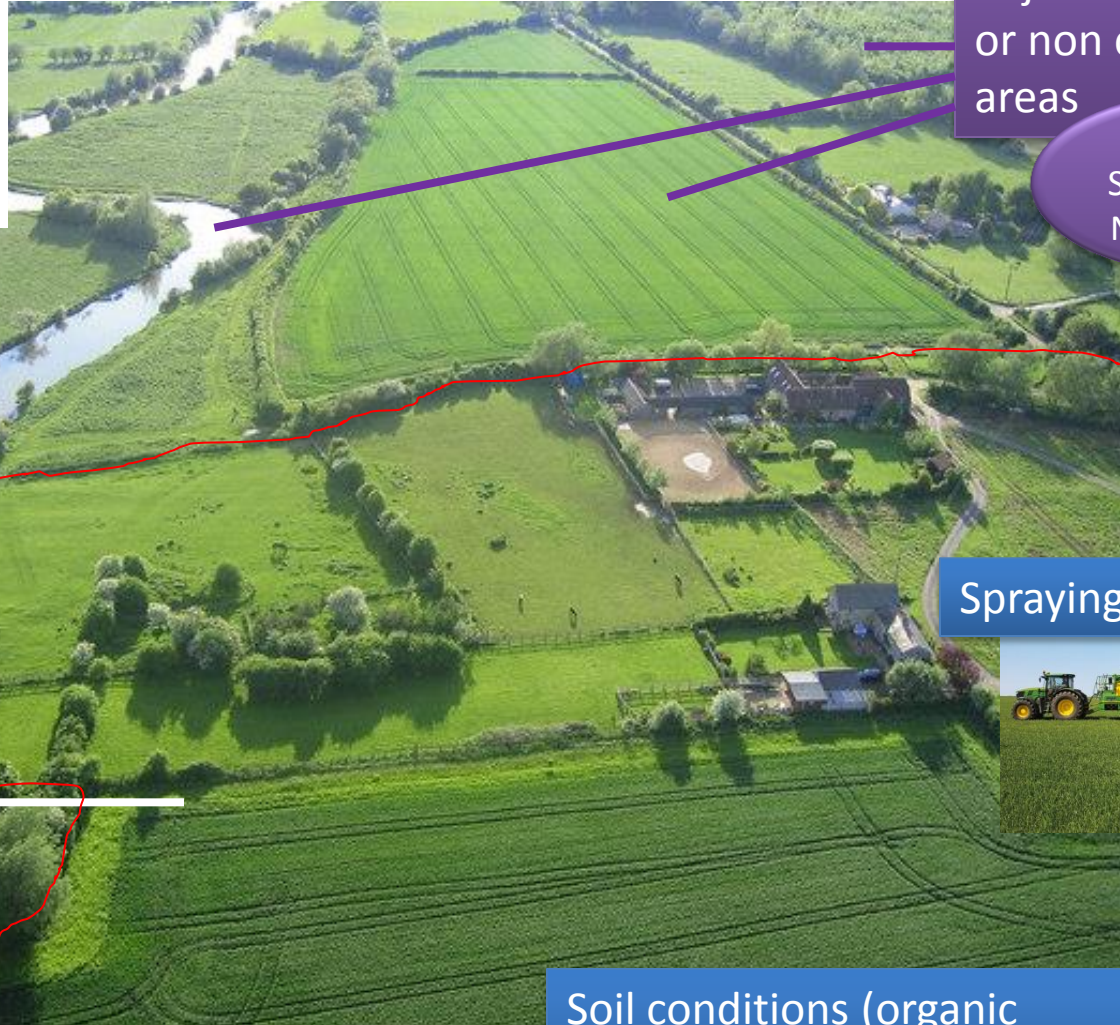
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Special care of protected areas established under Art. 6 and 7 of Directive 2000/60/E

**Special attention to risk mitigation actions designed to
reduce the contamination of surface water bodies from
pesticide drift and run-off.**

Risk mitigation measures in the context of EC Regulation 1107/2009 and EU Regulation 547/2011

Product application rate, timing frequency,



Off-field area: adjacent farmland or non cropped areas

WFD, CAP, SUD, Habitat, Natural 2000

Spraying equipment



SUD

Buffer zone

WFD

Soil conditions (organic matter, drainage, runoff...)

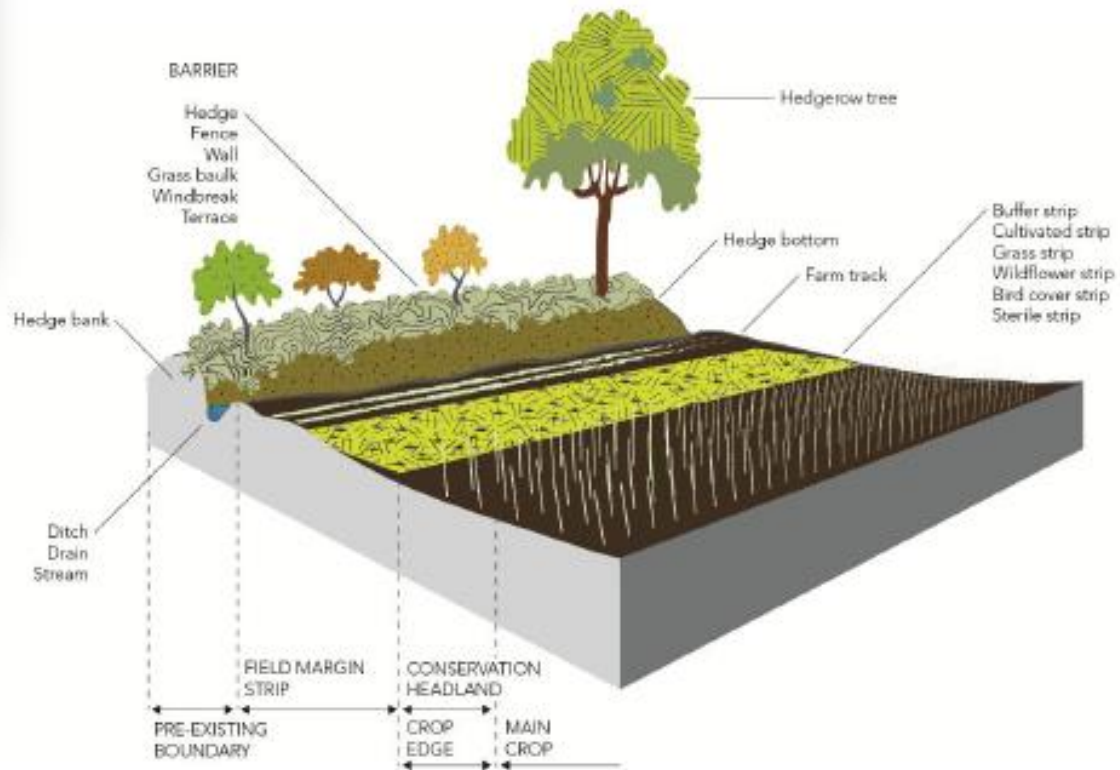


Risk Mitigation Toolbox

Category	RMM	Protects
Buffer Zone	No spray zone, wind-dependant no spray zone, bare soil, landscape dependant buffer zones, aerial treatments	All organisms from exposure to spray drift
Field margin	Vegetated buffer zone	All organisms from exposure to spray drift / runoff Provides habitat and food resource
	Multifunctional field margin	All organisms from exposure to spray drift / runoff Provides habitat and food resource
Compensation areas	Recovery areas (ecological focus areas)	All organisms from exposure to spray drift / runoff (pending on location) Provides habitat and food resource
Spray drift reduction technologies	Nozzles, equipped sprayers, directed spray, precision treatments	All organisms from exposure to spray drift
Dust drift reduction technologies	High quality coating, low dust drillers	All organisms from exposure to dust drift
Conditions of application	Application rate and frequency management	All organisms from exposure to drift/runoff
Risk mitigation measures for pollinators	Bee hive removal or protection, application periods, information to beekeepers	Bees



Cultivated areas





Buffer / non sprayed zones

- ✦ Very common in risk assessment for non-target arthropods and more recently honey bees
 - Basis: testing using application rates representing spray drift
 - Buffer zones recommended (27 out of 27 feedback, MAgPIE workshop)



- ✦ Connected to recommendations on field margins management

Buffer / non sprayed zones

- Combination of precision farming and GIS mapping facilitates the compliance of no spray zones
- Systems are already on the market
- Increases the transparency on non sprayed zones
- Supports documentation of PPP measures for the farmer



Vegetated Buffer strips/ Field margins

► Field margins: Evaluation and ranking of **multiple benefits** of different field margin types:

- Natural regeneration
- Grass sown
- Wildflower sown
- Pollen and nectar mix
- Wild bird seed mix
- Annual Cultivation
- Conservation headland



► To: **birds, mammals, pollinators, non-target arthropods, non-target plants**, in addition to action on spray drift, run-off etc



This action/ training/ seminar is carried out by [contractors name] under the contract no... with the Consumers, Health and Food Executive Agency (former Executive Agency for Health and Consumers).

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