Risk assessment procedure for pesticide application equipment: results for the Belgian case

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Objectives:

- to develop and validate a **Risk Assessment (RA) protocol** according to the Directive 2009/128

- to **apply** the Risk Assessment protocol **on the PAE in use in Belgium**

- to develop **inspection protocols** for the PAE in use not subject to exemption and not subject to inspection at this moment based on **RA** results

Chapter 3: Pesticide Application Equipment (PAE) - Article 8: Inspection of equipment in use

1. MS shall ensure that PAE in **professional** use shall be subject to inspections at regular intervals. The interval between inspections shall not exceed five years until 2020 and shall not exceed three years thereafter.

2. By 14 December 2016, Member States shall ensure that PAE has been inspected at least once. After this date only PAE equipment having successfully passed inspection shall be in professional use. New equipment shall be inspected at least once within a period of five years after purchase.

3. By way of **derogation** from paragraphs 1 and 2 and, following a **risk assessment for human health and the environment including an assessment of the scale of the use of the equipment**, MS may:
   a) apply **different timetables and inspection intervals** to **PAE not used for spraying** pesticides, to **handheld PAE or knapsack sprayers** and to **additional PAE that represent a very low scale of use**, which shall be listed in the National Action Plans provided for in Article 4. The following additional pesticide application equipment shall **never be considered as constituting a very low** scale of use:
      i. spraying equipment mounted on **trains** or **aircraft**;
      ii. **boom sprayers larger than 3 m**, including boom sprayers that are mounted on sowing equipment;
   b) **exempt from inspection** handheld PAE or knapsack sprayers. In this case the MS shall ensure that operators have been informed of the need to change regularly the accessories, of the specific risks linked to that equipment, and that operators are trained for the proper use of that application equipment in accordance with Article 5.
Risk Assessment related to the use of PAE

Risk before the inspection
- technical defects

Risk after the inspection
= Residual risk

Risk assessment completed

Exemption? Risk reduction
Determination of all dysfunctions and consequences for each 23 priority PAE

- List of the defects (= inspected parameters)
Determination of the gravity of impact

- **RISK** related to a hazard
- **SIRA-APESTICON** dependent of technical state of the equipment

=  

- **HAZARD**: gravity of impact
- **SIRA-APESTICON** dependent of technical state of the equipment

=  

- **PROBABILITY** of occurrence of that harm
- **SIRA-APESTICON** dependent of technical state of the equipment

Expert judgement

Targets: human health and environment
Determination of the occurrence of each defect

- Based on the sprayer inspection in Belgium:
Risk of one defect

\[ \sum \text{Risk of every defects} = \text{risk for one machine} \]
Determination of the scale of use of each 23 priority PAE

- National quantity of pesticides sold yearly
- Distribution of the a.s. regarding the PAE
- % of use of the PAE
Determination of the partition Technical vs Human part of risk

- Based on an European enquiry (experts of PAE inspection)
Example for Knapsack sprayers

Risk for operator

Risk for consumer

Risk for environment

Advantage: good help to build new inspection protocols

Introduction | Objectives | Method | Results | Perspectives
Advantage: direct impact of the inspection on one given machine → + for the user
### Advantages:

Total technical risk (defects + residual) scale of use $\Rightarrow +$ for the consumer and for environment.
**Advantages:** total risk (defects + residual); scale of use; technical + human part of risk

- Risk of pesticide application can be compared between PAE types
- To observe the effect of human part of risk
To resume:

A lot of results and factors for a Global analysis

- Decision about the mandatory inspection
- Decision about the intervals of inspection
RISK related to a hazard

SIRA-APESTICON → dependent of technical state of the equipment

Example: Risk relative to a leak, to the environment

HAZARD: severity of harm

SIRA-APESTICON → Impact of technical defects on human health and environment

Example: Over-dosage, toxic effect on the environment

PROBABILITY of occurrence of that harm

SIRA-APESTICON → Occurrence of technical defects

Example: Occurrence of a leak on the PAE

New tool for systemic development of

29 PAE types

New inspection protocols

Risk variation following defects

PAE technical description

Introduction | Objectives | Method | Results | Perspectives

Example: Occurrence of a leak on the PAE → Impact of technical defects on human health and environment

RISK related to a hazard

Example: Risk relative to a leak, to the environment

HAZARD: severity of harm

Example: Over-dosage, toxic effect on the environment

PROBABILITY of occurrence of that harm

Example: Occurrence of a leak on the PAE

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Thanks for your attention