



# ISO 16122 : AN HARMONIZED PROCEDURE FOR SPRAYER INSPECTION

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## FOR MEMORY :

- **In the 90's some different countries implement sprayer inspection**
  - Mandatory (Germany, Belgium, Netherlands...)
  - Voluntary basis (France...)
- **Need for common reference → a 1st standard**
  - Publication of EN 13790 in 2003
  - Standard divided in 2 parts → field crop sprayer / Air assisted sprayers for bush and trees





# THE 2009-128 DIRECTIVE

## ○ The article 8 announce :

- A mandatory inspection of sprayers in use
- A list of relevant requirements applicable on pesticide application equipment's in order to achieve a high level protection for health and environment
- These relevant requirements are listed in annex 2

## ○ An harmonized standard is required



# NEED FOR AN HARMONIZED STANDARD

- **What is an harmonized standard ?**
  - A standard built with a mandate given by the EC to a standard organization (CEN)
  - A standard which gives technical procedures to comply with the relevant requirements
- **But, even if published in the official journal of the European union, applying a standard is not mandatory...**





# BENEFITS OF AN HARMONIZED STANDARD

## ○ Conformity to the Directive

- Applying the standard give a presumption of conformity to the Directive
- Easy procedure to inform the EC
- No need for further explanations

## ○ Mutual recognition

- Reference to standard is made in order to facilitate the mutual recognition between European member states
- Standard will facilitate transfer of sprayers from one country to another one.



## **2010 : BIRTH OF THE REVISION**

- In 2010, the European commission give mandate to the CEN
- A first vote has to determine if the 13790 shall be lightly revised or if it shall be re-examine in depth...
- In accordance with the Vienna agreement, the ISO has been involved in the technical work and edition of the new standard : EN 13790 → EN ISO 16122





## **2 ASSOCIATED PROJECTS**

- In the same time, the revision of the 12761 standard follow the same circuit (2009-127 directive) : “environmental requirements for new sprayers” (ISO 16119 published in May 2013)**
- Similarity of experts and need of consistency supposed a parallel development of the 2 projects**



# A COMMON FRAMEWORK

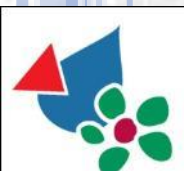
- First of all, the framework of the standards had to be defined in common with the 2 standards (that was not the case for 13790 / 12761 series)
- A “part 1” defines general requirements (essentially in terms of safety) and give a general table to define the scope of the different parts





# PARTS OF ISO 16 119 /16122

Criteria	Horizontal boom sprayers	Sprayers for bush and tree crops	Fixed and semi mobile sprayers	Portable sprayers	Foggers	Train sprayers	Aerial sprayers
<b>Types of sprayers / driving power</b>							
Tractor mounted	X	X			X		
Tractor trailed	X	X			X		
Self-propelled	X	X			X		
Truck / All-terrain vehicle	X	X			X		
Quad mounted	X	X			X		
Quad trailed	X	X			X		
Aerial mounted							X
Train mounted						X	
Semi mobile (stationary unit + moving part e.g. for greenhouses)			X		X		
Human mounted				X	X		
Human trailed	X	X					
Animal mounted							
Animal trailed							
<b>Type of outlet</b>							
Boom horizontal	X		X	X		X	X
Boom vertical		X	X	X		X	
Boom circular		X					
Gun and lance	X	X	X	X	X		
Canon		X	X	X	X		



# CONSTRAINTS

- **Standard shall answer to all relevant requirements mentioned in the directive**
- **Standard shall take into account the existent procedures :**
  - Difficulties to strongly increase /decrease requirements already put into force in some countries
  - Long experience of the experts → long and passionate debates...
- **Standard shall be based on requirements needed for new sprayers**
  - Requirements for in use sprayer shall not be more restrictive !





# CONSTRAINTS, BUT....

- **It has been decided not to re-open some older debates :**
  - Concerning the opposite point of view to determine the flow rate of the boom : cross distribution vs pressure + single flow rate of nozzles
  - Concerning the “health” of the pump : total flow rate measurement vs boom pressure + agitation
- **Two possibilities are still possible for those two points**



# EVOLUTION FROM EN 13790

## MAIN CHANGES -1

### ○ A new part : “Part 1”

- Definition of general requirements : safety, power transmission parts, blower, content of the report
- Scope of the different parts

### ○ A new “part 4”

- For fixed and semi-mobile machines

### ○ A “Part 2” with an extended scope

- “Horizontal boom sprayers” instead “field crop sprayers” in order to include smaller machines





# EVOLUTION FROM EN 13790

## MAIN CHANGES -2

- **Tolerances have been added when missing in 13790**
  - E.g. : Pump pulsations : →  $\pm 10\%$  in ISO 16122
  - E.g. Nozzle spacing → 5% of the nominal distance
- **All measurements are described (no indication in the previous standard):**
  - For each measurement mentioned, a test method shall be describe in the standard.
  - Accuracy of instrumentation and tolerance are defined



# EVOLUTION FROM EN 13790

## MAIN CHANGES -3

### ○ Examples of new inspection points

- Cleaning equipment → directly dependent of the new design of sprayers and requirements defined in 12761 standard (implemented since 2001)
- Accuracy of instrumentations : forward speed sensors and flowmeters used by the regulation system
- Horizontal deformation of the boom
- Pressure distribution along boom
- ...





# ADMINISTRATIVE CIRCUIT

- **First draft submitted to vote during summer 2011 :**
  - Approval (17 positive votes / 4 negative / 1 abstain)
  - More than 900 comments to be examine by the working group (autumn 2013)
- **Second draft written in 2014**
- **Submitted to a new vote (too much comments)**
  - Approval (21 positive votes / 1 negative / 11 abstain)
- **But... editorial error made by ISO committee → submission of a old document instead the revised one....**



# CONCLUSION

- ISO 16122 an harmonized standard to presume the Directive requirements
- Strongly needed for mutual recognition between member states
- May be a soon publication... ?

