SESSION
Inspections of new sprayers before their delivery

Chairmen: E. Gil, C Schulze=Stentrop

Draft SPISE guideline for the inspection of brand new sprayers

5th European Workshop on Standardized Procedure for the Inspection of Sprayers in Europe
Montpellier, October 2014
After how many years of use the first inspection of brand new sprayers is scheduled?

SPiSE 2012

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Unidad de Mecanización Agraria
http://uma.deab.upc.edu
New sprayers

New sprayers has to meet the requirements of both the users and society

- EC: Amendment on Machine directive 127/2009/EC
- Environmental safety requirements in this amendment
- Self-certification by manufacturers
- In force since December 15, 2011

- Market-surveillance needed
- EN / ISO standards
- Independent type certification
- Individual testing

(J. Kole, 2008)
Win – Win situation

Manufacture
- At the end of a production is always a control procedure
- Compliance with the design rules is assured in the current manufacturing and during test operations
- Marketing advantage

Customer
- Sprayer Ready-to-use
- No other immediate expenses / time / cost
- No „surprises“ with regard to design requirements
- Higher confidence to manufactures

General
- Control before use
- Test intervals from the start
- Only approved equipment in use
Voluntary certification of new sprayers in Spain
Voluntary certification of new sprayers in Spain

In several cases minor and major defects were detected:

- Manometers
- Hose diameters (pressure drop)
- Uncompensated flow rate
- Uneven boom placement
- Hoses bad positioned
- ...

NONE OF THOSE SPRAYERS WERE ABLE TO ACOMPLISH EN 13790 NOR ISO 16122

“Make sure that requirements for sprayers in use are not higher than for new sprayers”
(Ganzelmeier, 2008)
The real situation

Manufacturers in general are not well informed about the new/old standards, especially the small and local manufacturers. This fact results, in some cases, in a not accurate sprayer’s manufacturing according the standards (Spanish’ situation)

WORKSHOP SOBRE LA SITUACION NORMATIVA EN EUROPA RELACIONADA CON LOS EQUIPOS DE APLICACION DE FITOSANITARIOS. EFECTO SOBRE LOS FABRICANTES

Unidad de Mecanización Agraria – www.uma.deab.upc.edu
Universidad Politécnica de Cataluña 29 de Mayo de 2014
Agropolis – Viladecans
The opinion of users (farmers)

Why must I follow the restricted rules of EN 13790 (ISO 16122) and, in the meantime, there are in the market new sprayers which not accomplish the same standard?

“I bought the sprayer last year and I used the original manometer. Now it is not in accordance with the EN 13790 (ISO 16122) requirements (resolution scale)”.

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FAQ – After SPISE TWG meeting Amsterdam, March 2014

Do we need a standard procedure? YES – ISO 16122

Do we need to follow the whole standard or can we cut some parts? See the proposal

Why a new sprayer must be inspected Problems encountered. Big differences among manufacturers

To have a supervision of the workshop activity We MUST guarantee the quality system and the same requirements than requested for a “conventional” workshop

Manufacturers should follow inspector’s training courses Linked with quality assurance
**ISO 16122-2:2014**

**Do we need to fulfill all requirements?**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Answer</th>
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<tbody>
<tr>
<td>4.1 Leaks and dripping</td>
<td>Yes</td>
</tr>
<tr>
<td>4.2 Pump(s)</td>
<td>Yes</td>
</tr>
<tr>
<td>4.3 Spray mix agitation</td>
<td>Yes</td>
</tr>
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<td>4.4 Spray liquid tank</td>
<td>Yes</td>
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<tr>
<td>4.5 Measuring systems, controls and regulation systems</td>
<td>Yes</td>
</tr>
<tr>
<td>4.6 Lines (pipes and hoses)</td>
<td>No</td>
</tr>
<tr>
<td>4.7 Filters</td>
<td>No</td>
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<tr>
<td>4.8 Spray boom</td>
<td>Yes</td>
</tr>
<tr>
<td>4.9 Nozzles</td>
<td>Yes</td>
</tr>
<tr>
<td>4.10 Blower</td>
<td>Yes</td>
</tr>
<tr>
<td>4.11 Spray guns and lances</td>
<td>Yes</td>
</tr>
</tbody>
</table>
ISO 16122-2:2014

Do we need to fulfill all requirements?

<table>
<thead>
<tr>
<th>Test methods</th>
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</thead>
<tbody>
<tr>
<td>5.1 Test facilities</td>
</tr>
<tr>
<td>5.2 Spray and agitation pump(s)</td>
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<tr>
<td>5.3 Sprayer’s pressure indicators</td>
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<tr>
<td>5.4 Flow meters for controlling the volume/hectare rate</td>
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<tr>
<td>5.5 System for controlling forward speed</td>
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<td>5.6 Uniformity of the transverse volume distribution with a horizontal patternator</td>
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<tr>
<td>5.7 Flow rate of the spray nozzles</td>
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<tr>
<td>5.8 Pressure drop</td>
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<tr>
<td>5.9 Pressure variation when the sections are closed</td>
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<tr>
<td>5.10 Pressure variation when the spray is switched off</td>
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<tr>
<td>5.11 Pressure distribution</td>
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That’s the reason why we propose manufacturers MUST follow training inspection program and an official workshop arrangement.
Some practical considerations

- **Norway** has mandatory inspection of new sprayers.
- **Sweden** has no official but growers contracts require that all sprayer must have a valid inspection when the sprayers is used.
- **Frequent failures** at delivery. Also on sprayers supposed to have been tested at factory (fragments from drilling holes in tank sitting in pump, valves or flow meter, blocking boom section valves, hose diameters, filter, nozzle filters, ...)
- Test must be done **before taken into first use**.
- We are **not only talking about big manufacturers** and at the factory.
- Some sprayers are **transported, stored at dealers**, transported again before taken into use. Where is the responsibility?
- Sprayers can also be **finally assembled at the farm/greenhouse/nursery** and are not from large series-production... Many of theses are custom designed.
We MUST avoid this....

Thank you very much