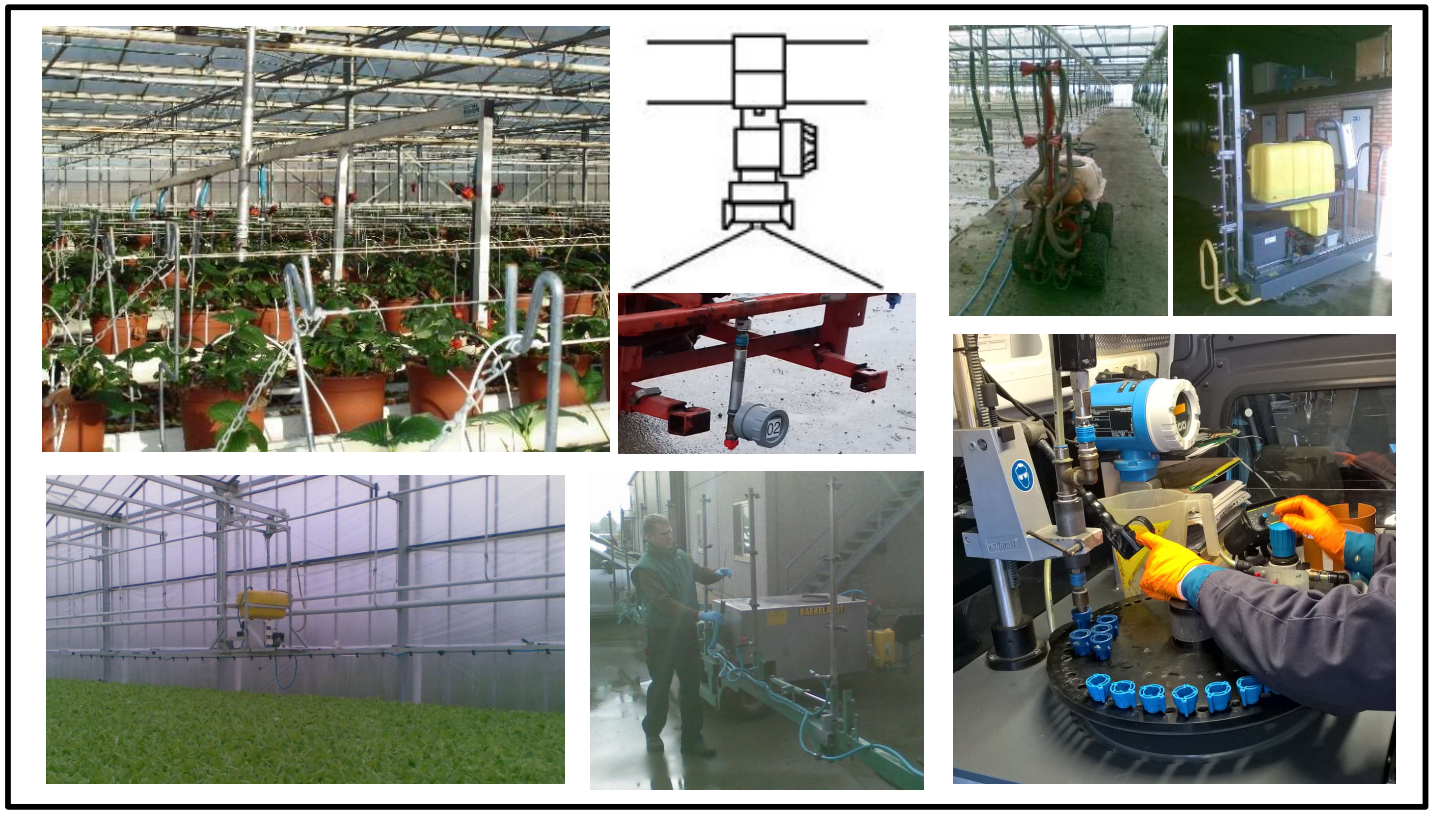
Experience and challenges in the inspection of horticultural and ornamental sprayers (Flanders-Belgium)



Spise 8 workshop the Netherlands
May 2023
Johan Declercq
ILVO Flemish Institute for Agricultural and Fisheries Research

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General overview

- Federal agency for food security is responsable (FAVV/AFSCA)
- Federal legislation
- Delegates the inspection to 2 independent regional authorities

Flemish Region:

- *Institute for Agricultural and Fisheries Research (ILVO)*
- *Responsible for the Flemish region and Brussels capital region.*

Walloon region:

- *Agricultural research centre(CRA-W)*
- *Responsible for the Walloon region and the German speaking region.*

- Regional authorities are responsible for organisation, administration, accreditation ISO 17020, inspections, follow up,….
- Close collaboration between the two regional authorities (same equipment, software, accreditation, …)

History

2009: Publication from directive 2009/128/EC

1995-98 1st cycle
1999-01 2nd cycle
2002-04 3rd cycle
2005-07 4th cycle
2008-10 5th cycle
2011-13 6th cycle
2014-16 7th cycle
2017-19 8th cycle
2020-22 9th cycle
2023-24 10th cycle

1999 - …: every 3 year update of the legislation and the protocols

September 1995: Inspection start up First inspection protocol for field crop sprayers.

September 1998: Protocol for orchard and vineyard sprayers

March 2011: Publication inspection protocols for horticultural/ornamental sprayers and soil-disinfection machines. Start up horti/orna

January 2014: Start up inspection from soil-disinfection machines

January 2023: Start up inspection from fogging equipment (cold en hotfoggers)









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Inspection protocol: Horticulture and ornamental sprayers

- Start 2008-09 setting up a “theoretical” protocol
- Based on:
  - the existing Belgian protocols for field crop and orchard sprayers,
  - ISO16122 Fixed and semi mobile sprayers published in 2015….

- In 2010 test inspections with all inspectors together →Very important
- The first protocol was changed, software updates and extra needs were defined

- **Start up in 2011 and gradually tightened troughout the different cycles**

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Inspection issues:

Main issues concerned:

- Equipment with one pressure unit and multiple separate booms
- Equipment with booms with different vertical branches
- Price settings

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Inspection issues:

One pressure unit and multiple separate booms:

- Chose to see pressure unit(s) and booms as seperate PAE
  - Certification report and sticker for each seperate part
  - Traceability (third party inspections)
  - Interchangeable

Inspection issues:

Equipment with booms with different vertical “branches”:

- Horizontal bearing boom:
  - Is inspected as a normal horizontal boom (curvatures, hinges, …)
  - Distance tolerances between branches were added
- Vertical branches:
  - Are inspected as individual vertical booms

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Inspection issues:

Price settings:

- For PAE with boom fixed to pressure unit:
  - Prices are identical to field crop sprayers (boom width in meter)
  - Depending on the number of nozzles on the PAE divided by 2
- For PAE with seperate booms:
  - Other (lighter) prices for the separate booms →less work
  - Depending on the number of nozzles

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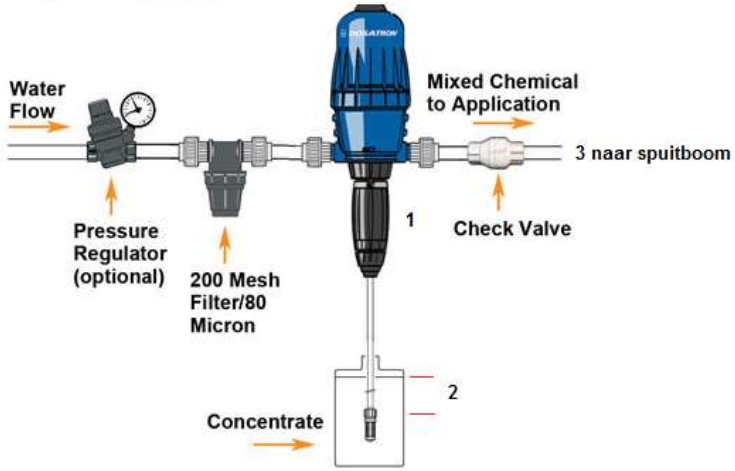
Inspection issues:

Testing injection systems (dosatron, …):

- No experience with those systems
- A new (simple) test procedure was defined

Werkwijze test:

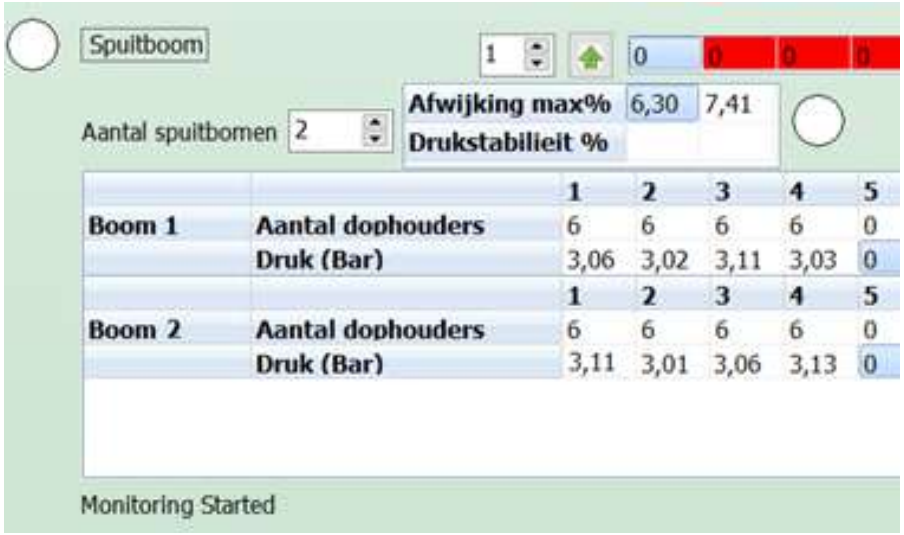
1) Instellen en aflezen dosering.
2) Aanzuig dosatron ofwel:
   - In maatbeker en vaste hoeveelheid bv 500ml laten opzuigen
   - Vanuit tank met vaste hoeveelheid water vullen.
3) Flowmeter op 1 dop en op de spuitboom. (dop=gemiddeld debiet)
4) Toestel laten spuiten en bij opstart dosatron ook flowmeting opstarten.
5) Wanneeer de vaste hoeveelheid water aanzuigtank dosatron werd verspoten, flowmeting stopzetten.
6) alle waarden ingeven



Inspection issues:

Inspection Software:

- Adding the protocol to the software
- Changings concerning pressure registrations multiple fixed booms
- Implementation prices equipment with multiple seperate booms



Inspection Equipment

- Same equipment used for field crop and orchard sprayers.
- No extra investments needed.
  - Nozzle test bench,
  - Pressure sensors,
  - …

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Inspection issues:

ISO 17020 Quality system:

- Quality system ISO 17020 is mandatory in Belgium!
- Extension of the scope
- Extra work to introduce the new inspection protocol into the existing quality system.

Inspection location:

- 95% from the inspections on site → No problem with the mobile teams.
- Beneficiary for the inspection →Extended inspection period (winter time)
- Last years admittance problems into greenhouses →pests
- “Luckily” no hard winters and inspections can also be performed outside

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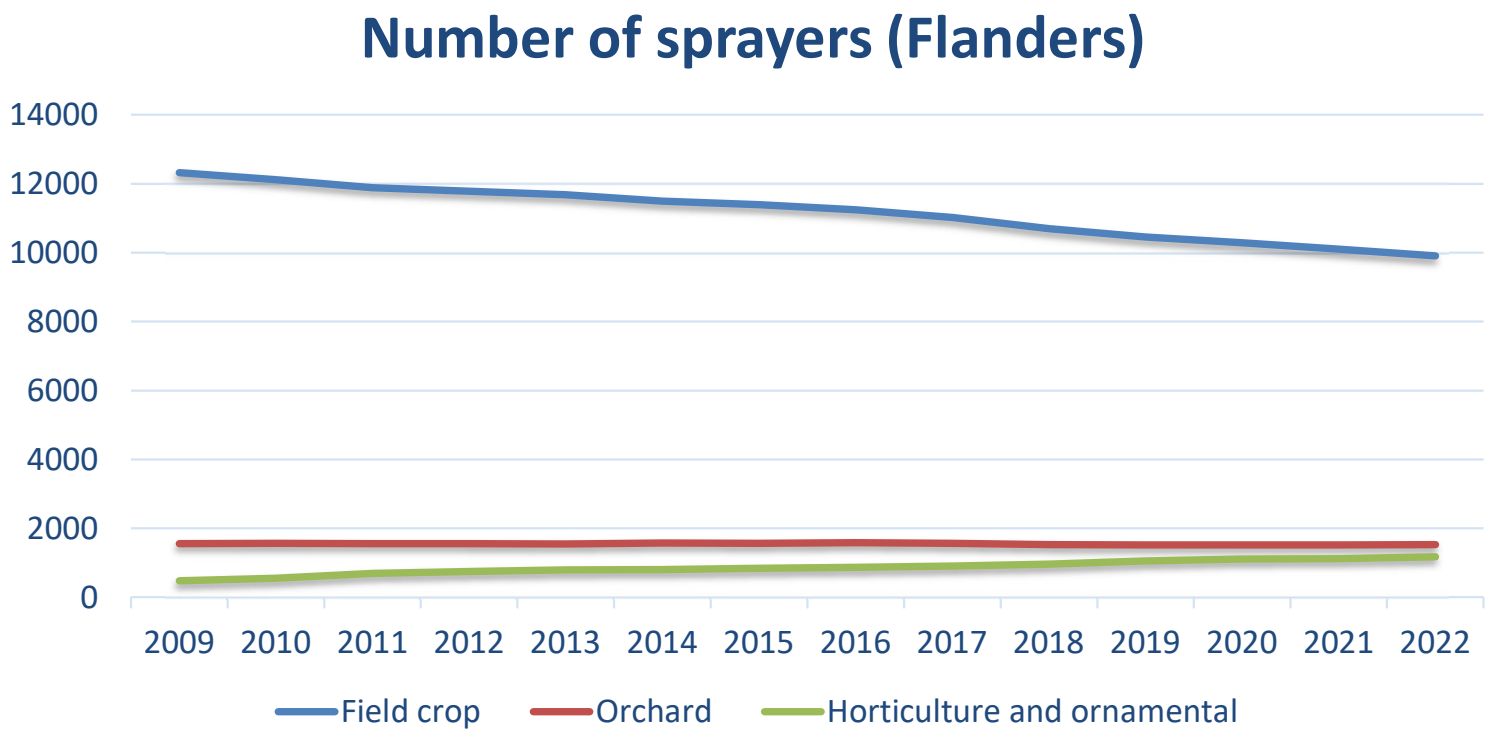
Inspection results

Evolution of the amount of inspected sprayers:

- Increasing number of horticultural & ornamental sprayers (still ongoing!)
- Actually +/- 1.200
- Mix of all type of equipment



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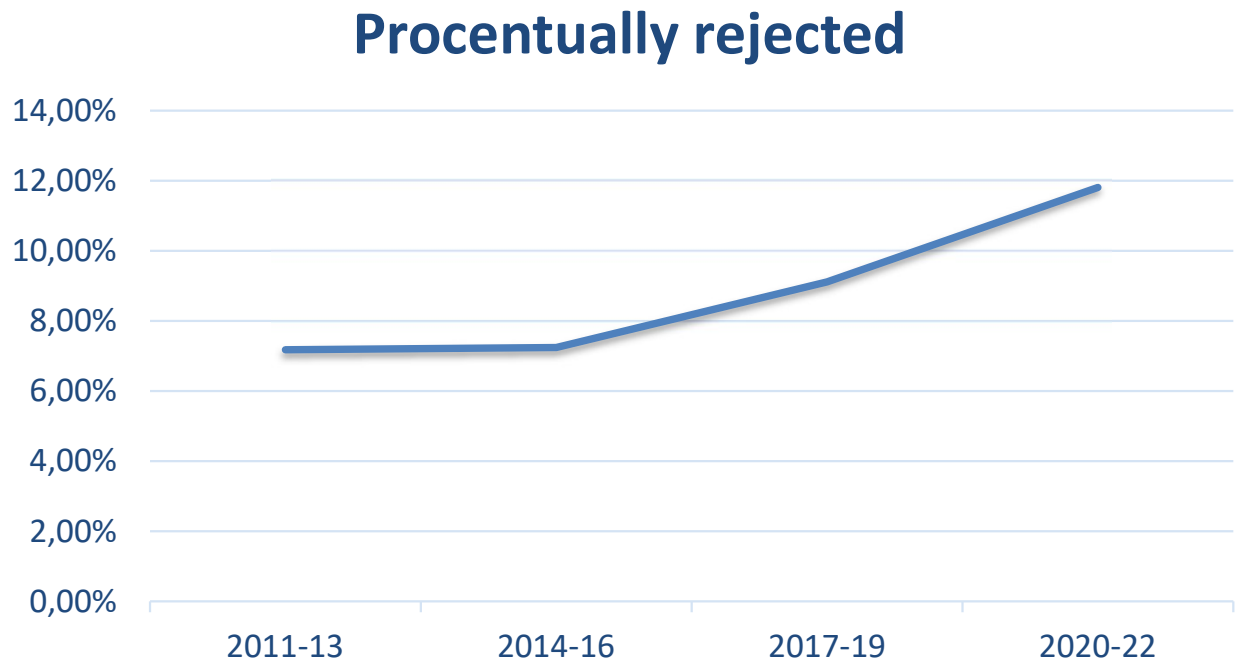
Inspection results

Evolution of the number of rejections:

- Increasing percentage of rejections due to tightening of the inspection protocol



	Totally inspected	Rejected	Procentual
2011-13	697	50	7,17%
2014-16	815	59	7,24%
2017-19	911	83	9,11%
2020-22	1109	131	11,81%

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Inspection results

Major defects=rejections (Class I: to be repaired):

- Same top 3 as with field crop and orchard sprayers
- Increasing number of rejections due to:
  - Increasing number of sprayers inspected
  - Tightening of the inspection protocol

ITEM	DESCRIPTION	Total	2011-13	2014-16	2017-19	2022-22
H4	**Bad pressure gauge**	**144**	24	30	33	57
L2	**Worn nozzles**	**98**	20	21	24	33
N1	**Leakages**	**71**	10	5	22	34
G1	Torn air clutch membrane	**23**	6	7	6	4
I	Pressure unbalance	**22**	1	1	8	12
H1	No presure gauge	**17**	2	3	1	11
N3	No anti-drip device	**15**	0	0	0	15
L1	Nozzle set not homogene	**12**	1	3	0	8
M4	Valves not closing	**8**	0	0	5	3
G4	Bad working pump	**7**	0	0	1	6
M5	Bad working pressure valve	**3**	0	0	3	0
M3	Bad working spray rate controller	**3**	0	0	1	2
D3	Spray boom curvature	**2**	1	0	0	1
A3	Fan in bad state	**1**	0	0	0	1

1

2

3

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Conclusions:

- **Horiculture and ornamental PAE → Broad variety of PAE and combinations!**











Conclusions:

Setting up inspections to be well considered!

- Belgium chose a general method (Nozzle test + pressures)
- Perform a lot of test inspections! →Training inspectors
- A “light” start up → Owners get used

There are still some challenges:

- Geenhouse inspections on site (entering the greenhouses)
- Safety issues in some cases (booms in high positions)

Website: https://keuringspuittoestellen.ilvo.vlaanderen.be/nl

Thank you

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