

Quality assurance of the workshop activity - including test facilities

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Especially for MS with various borders it is essential to know the state of the testing system in the neighbour countries. In North Rhine Westphalia a well-established system is working well since years. But how is the situation in other Federal States like Rhineland Palatinate, Hessen or Lower Saxony? All three federal states are following the same EU Directive, but the responsibility of the local authorities is different compared to North Rhine Westphalia. But in all cases we are accepting a sticker on a sprayer throughout the whole Europe. Or how is the quality system in the Netherlands? Following that question a developed questionnaire and parameters for quality control of accepted workshops was provided in the shape of a SPISE Advice. This SPISE Advice was adapted to the local situation in North Rhine Westphalia. With this system a visit of a recognized workshop in the Netherlands was conducted in collaboration with local authorities (SKL). The reason for this visit was to be sure that there will be no problem with the mutual recognition of a tested sprayer. This review showed a good result with a comparable system between the Netherlands and North Rhine Westphalia. Especially in the case for establishing a new system the SPISE Advice was really helpful.

Keywords: Quality assurance, mutual recognition, workshop activity, testing facilities

Introduction:

When introducing an inspection scheme for the periodical inspection of sprayers in use, important for the effectiveness of this system and for the acceptance and support of the inspections amongst the farmers, is the quality and uniformity of the performed inspections. The inspection scheme needs to have checks and balances in order to create this quality and uniformity. The base of the inspections is the requirements in the European Directive 2009/128 article 8 and Annex 2. For the most common sprayer types this requirements in Annex 2 are in detail specified in the harmonized standards of the EN-ISO 16122 series. The inspections have to be executed by inspectors who are well trained in how to use this standards and whose knowledge is also kept up to date by means of periodical refreshing courses. The measuring equipment used during the inspections has to be in line with the harmonized standards and accurate, but it must ensure that during time, the accuracy and condition of the testing equipment stays on the required level. To keep the quality of the performed inspections good and the output uniform, a system of quality assurance is needed. This system also has to include elements of quality control, both on the performed inspections as on the testing equipment. For mutual recognition of performed inspections between the different member states in the EU, trust in the different systems in Member States is essential. Therefore a uniform system of quality assurance in all Member States is needed. This system will include elements like training of the inspectors, requirements of the workshop facilities, inspection procedure, quality control on the performed inspections, calibration of testing equipment, registration of the performed inspections and a procedure about how to deal with non-conformities. The basic elements of such quality assurance scheme needs to be implemented through all European countries in order to reach a working system of mutual recognition and a meaningful output of the effort to establish a system of periodical inspection of all sprayers in use with full support of the owners of sprayers.

Material and methods:

The bases for the mandatory sprayer testing in North Rhine Westphalia (NRW) besides the European requirements are a lot of national and local laws and decrees. First of all there is a need for harmonization between the Federal States. But also harmonized practices between different European countries like the Netherlands, Belgium etc. and Germany. Because of the missing of such a standard NRW wants to install a quality assurance system to improve the acceptance of the Dutch testing

scheme in its federal state. Therefore the SPISE Advice was adapted to the local situations. A checklist was established to help the inspector on-site.

Checklist for a on-site visit of a inspector

Administrative demands:		
Is the workshop recognized	Yes	No
Has the inspector a valid certificate	Yes	No
Has the workshop the correct documents	Yes	No
Test site:		
Is the testing site protected against weather circumstances (wind/rain)	Yes	No
Is the used water collected and given back to the farmer or treated properly	Yes	No
Are the exhaust gasses discharged properly (when testing inside)	Yes	No
Has the test site enough space to perform the inspection properly (folding booms) and safe?	Yes	No
Testing equipment:		
A. Reference manometer(s)		
Diameter (analogue)	Yes	No
Scale (analogue)	Yes	No
Class	Yes	No
Accuracy (valid certificate)	Yes	No
Functioning test bench/connection to sprayer	Yes	No
B. Reference flow meter/pump tester		
Scale (analogue)	Yes	No
Range	Yes	No
Accuracy	Yes	No
General functioning complete testing installation (connecting to sprayer/transparent part/safety valve/pressure adjusting device/pressure gauge)	Yes	No
C. Patternator (mechanical)		
General condition/functioning/dimension	Yes	No
Condition gutters	Yes	No
Distance gutters	Yes	No
Condition and accuracy measuring glasses	Yes	No
D. Patternator (electronic)		
Condition of rails (general condition/flatness/spacing reference points)	Yes	No
Condition and functioning of measuring wagon	Yes	No
Distance upper points separation plates	Yes	No

Condition and tightness of measuring glasses (incl. opening/closing system)	Yes	No
Accuracy of the measurements	Yes	No
E. Nozzle flow-rate tester (mechanical)		
Condition and functioning of the connection to nozzles	Yes	No
Condition of hoses	Yes	No
Condition and accuracy of measuring glasses	Yes	No
General condition	Yes	No
F. Nozzle-flow rate tester (electronic)		
Condition and functioning of the connection to nozzles	Yes	No
Accuracy of the measurements	Yes	No
G. measuring glasses (certified)	Yes	No
H. Types of sprayer can be tested in the workshop		
Horizontal boom sprayer	Yes	No
Vertical boom sprayer, mist blowers and similar	Yes	No
Fixed and semi mobile sprayers	Yes	No
Micro granulators	Yes	No
Wiper	Yes	No
Seed treatment equipment	Yes	No
Duster	Yes	No
Post harvest equipment	Yes	No

Discussion

For verification and testing a scheme for mutual recognition of workshops and testing facilities a visit in Lottum, NL was carried out. During this visit the certified workshop Coenders Lottum B.V. was inspected by the SKL. The testing of the testing equipment is different from the way in NRW. SKL is doing the inspection/calibration of the testing facilities on site in the workshop with its own testing equipment. On the basis of these test results a report is filled and given to the workshop.



On-site inspection of a mobile patternator

During the visit it was possible, with the help of the above shown checklist, to receive an overview that the workshop follows all the relevant guidelines, rules, laws and local decrees. This knowledge is the basis for a reliable, mutual recognition of tested sprayers in other countries. Also the discussion with the test engineer during the test of an asparagus sprayer gave a good impression of the testing quality.



Testing the pump capacity with a certified flow meter

During the inspections of the workshop the following items have been audited:

1. Administrative demands, including skills of the test-operators.
2. Testing site meets the requirements.
3. Registration, check of the presence, condition and performance of the testing equipment.
4. Discussion of the results of the inspection visit with the test-operators and responsible person at the workshops.

For all the different requirements for a workshop to fulfil all the legal requirements the author would like to refer to SPISE Advise (TWG 4) and the local situation. The visit showed the need of such two-way inspections. Especially in the discussion with the testing staff and the farmers the acceptance of foreign stickers and reports will increase. The visit shows also the need of a summary report of the results coming out of the examination of the workshop. This report should be best in the appropriate language

or at least in English. Also for a tested sprayer there should be the possibility to give in case of an international sale an English summary to facilitate the local acceptance. The basis for all the different tested sprayers is the EN/ISO 16122, part 1-4. If there are some other types of plant protection equipment that is not covered by the EN 16122 SPISE Advises can help for the testing and also for a mutual recognition.

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References:

KOLE and HARASTA, 2018, Quality assurance of the workshop activity including test facilities, SPISE Advice (TWG 4)