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## **Session 4: Inspection quality: “Certification” of the Workshop activity (quality assurance) included the certification of devices/instruments used for the inspections**

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### **“Certification” of the Workshop activity (quality assurance) included the certification of devices used for the inspections**

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#### **Summary**

Quality and uniformity of the inspections are very important. When the inspections are not done in the right way or with testing equipment not in good condition, the goal of the establishment of an inspection scheme will not be reached. Therefore a system of quality assurance is needed. This scheme shall cover the whole procedure and all aspects related to the inspection of sprayers. It starts with clear guidelines for all types of sprayers, well trained test-operators and testing equipment what is good condition. Then the inspections shall be performed in the right way by workshops/testing teams according to the right procedures with the right use of the testing equipment, therefore periodical control on their activities is needed.

#### **Introduction.**

When introducing an inspection scheme for the periodical inspection of sprayers in use, important for the effectiveness of this system and for the support of these 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.

#### **Quality Assurance**

The base of the inspections are the requirements in the European Directive 2009/128 article 8 and Annex 2. These requirements in Annex 2 are for the most common sprayer types in detail specified in the harmonized standards of the EN-ISO 16122 series for the different types of sprayers. The inspections have to be executed by inspectors who are well trained in how to use these standards and from who the knowledge is also kept up to date by means of periodical refreshing courses. The measuring equipment used during the inspections has to be accurate, in line with the harmonized standards, but it must be ensured that during time, the accuracy and condition of the testing equipment stays on an acceptable level.

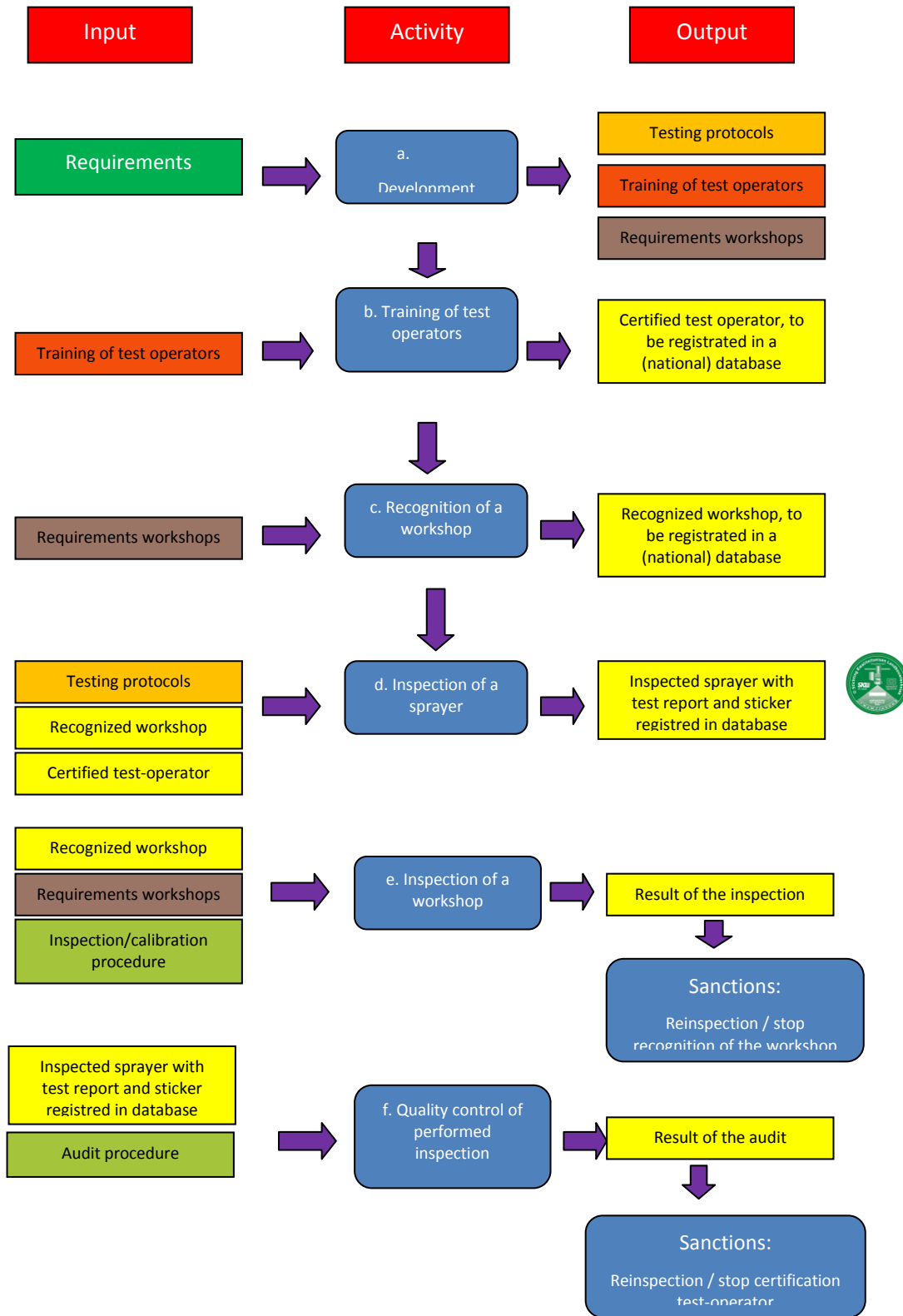
To keep the quality of the performed inspections good and the output uniform, a system of quality assurance is needed. This system also has to include elements of quality control, both on the performed inspections as on the testing equipment.

For a good mutual recognition of performed inspections between the different member states in the EU, a uniform basic system of quality assurance in all member states is needed. Therefore SPISE has created this Working group to define a SPISE Advice which contains guidelines on how to certify the activities of the workshops who perform the inspections. The guideline will contain an example of a quality assurance scheme, what will include the activities of the workshops but also the activities in the total inspection scheme needed to guarantee the constant quality of the performed inspections.

The basic elements of a quality assurance scheme need 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 support of the users of sprayers.

**Outline of the total inspection scheme:**



## **QMS: Activities**

In the Quality Management System (QMS) the following activities are present:

### *a. Management/development documents and procedures*

The objective of this activity is to manage the system, to develop and maintain the procedures and to develop and maintain the guidelines gathered around 3 theme's:

1. Testing protocols
  - a. Testing protocols for all types of sprayers
  - b. Inspection procedure (incl. registration of the results)
  - c. Test – reports (content / layout) and stickers (content / layout)
2. Training of the inspectors
  - a. Entrance level
  - b. Content and length of the training
  - c. Definition of the entrance level and the end level the trainees have to reach.
  - d. Refreshing courses (frequency / content)
3. Requirements workshops
  - a. Requirements workshops
  - b. Requirements testing equipment
  - c. Requirements for the periodical calibration of the testing equipment

### *b. Training of the test-operators*

The aim of this activity is a proper training of the test operators. Important is that they have enough skill to perform the inspections in line with the formulated testing protocols, give the correct interpretation of the measuring results of the testing equipment, give the owner of the sprayer a clear advice and fill in the test report in the right way.

Therefore a basic trainings course with both clear entrance – and end levels is needed. To keep the knowledge and skills of the test operators' periodical refreshing courses are needed.

Independency between the inspector and the owner of a sprayer is important

### *c. Recognition of the workshops*

The aim of this activity is to establish workshops who full fill the defined requirements, have the correct, calibrated and maintained testing equipment. The process is the initial audits of a potential workshop and the recognition if this workshop full fills all requirements.

It must be possible that the inspector can take independently decisions regarding the inspection of the machines, that there is no psychological or economical pressure on the inspector what can influence his decisions. The organisation of the workshop has to be in such a way that this is possible.

### *d. Inspection of the sprayers*

This activity is the heart of all the defined activities. A trained test operator at a recognized workshop (which includes well calibrated testing equipment) inspect the sprayer following

the guidelines and register the results of the inspection in the right manner. This registration of the results includes the issuing of the test reports. In article 8.6 of 2009/128/EC is stated that the national organisation issues the certificates of approved sprayers. But this registration system is also needed to create an overview of the issued certificates to inform the European Commission. The statistical information gathered from the test reports can also be used to both improve the inspection scheme and inform the owners of sprayers.

#### *e. Inspection of the workshop*

To have valid tests of the sprayers, it is important that the workshops and the inspectors follow the right procedures and that the testing equipment is in good condition and well calibrated. Therefore workshops have to be inspected periodically to make sure that the workshops still fore fills all requirements and that their testing equipment is in good condition. During this visits workshops will audited on the following areas:

- Condition and calibration of the testing equipment, only with reliable and accurate testing equipment good tests of sprayers can be made.
- The testing site shall meet the minimum requirements regarding influence of weather on the testing results, treatment of used water and working circumstances for the inspectors
- The workshop management should be verified
- The inspectors shall be supervised, to check if they follow the agreed procedures before, during and after the execution of an inspection and to see if they have a valid certificate of training.

Input from the workshops and the inspectors can also be used to improve the inspection scheme.

#### *f. Quality control of the inspected sprayers*

The keep the quality of the performed inspections uniform, audits of the result of the inspections (i.e. inspected sprayers) are needed. The results of this audit can used both for improvement of the system and for a sanctioning system for the workshops and/or test-operators.

This audit can be done in different ways:

- By means of an administrative control, this will be an analysis of the results of the performed inspections of the workshop, eventually compared to the national results or the results of comparable workshops or from other years
- By means of visits of the workshops while they are performing an inspection, during this visit an inspector can overlook the real execution of an inspection.
- By means of audits of already inspected machines at the farmyard. This audit has to be as short after the inspection has been done as possible.

Also a mixture of these three possibilities can be chosen.

#### **QMS: documents**

As input for the other activities in the first activity some basic documents have to be developed. But not only developed, they have to be maintained, following the Continuous Improvement Circle. Input can

come from different sources: from participants in the inspections scheme, from audits, from owners of sprayers or from developments in National or European legislation or standardisation.

The different documents are:

### **1. Testing protocols**

#### **a. Testing protocols for all types of sprayers**

For all relevant types of sprayer specific testing protocols have to be developed. This protocol can be based on harmonized standards (like EN-ISO 16122) or Annex 2 of 2009/128/EC combined with elements from harmonized standards for types of sprayers for which no harmonized standard is available. This testing protocol should contain also the pre-inspection as mentioned in EN-ISO 16122:1 (2015)

#### **b. Test –report (content / layout)**

Based on EN-ISO 16122:1 (2015) the test report shall contain a minimum information:

#### **c. Sticker (content / layout)**

By means of the content of the sticker it shall be clear for the owner of the sprayer:

#### **d. Testing procedure (incl. registration of the results)**

In this procedure the procedure how the test shall be performed, including preparation aspects as announcing an inspection in advance to authorities, formal order confirmation to the owner of the sprayers.

Also the registration aspects and the processing of the results of the test shall be part of this procedure. Included shall also aspects how to deal with stickers to be placed on the approved sprayers.

### **2. Training of the inspectors**

#### **a. Content and length of the training**

Central in the course shall be how to implement the testing protocols for the different types of sprayers and how to use the testing equipment and interpreting the measuring results. Extended by knowledge about the testing scheme and legislation. Dependent on the entrance level it can be extended by knowledge of sprayers/spraying technique or it can be extended with knowledge about calibration/adjustment of sprayers.

#### **b. Definition of the entrance level and the end level the trainees have to reach.**

Important is that there are general entrance levels for the participants of the courses. General knowledge about and practical skills with sprayers, spraying technique and nozzle should be known.

The end level to trainees shall reach shall be clear defined and tested by means of a clear theoretical and practical examination.

#### **c. Refreshing courses (frequency / content)**

To keep the level of the test operators up to date, refreshing courses with a reasonable interval are important. The content should focus on new developments and new techniques but also a rehearsal of the testing protocols.

### **3. Requirements workshops**

#### **a. Requirements workshops**

The requirements the workshops have to meet shall be clear defined:

- Type, size and focus of the enterprise
  - Number of test operators
  - Test location (safe and environmentally friendly testing)
- b. Requirements testing equipment

The requirements for the testing equipment are mostly defined in relevant parts of the standard EN-ISO 16122. Important to define is if a type approval is needed, how to deal with testing equipment what is already certified in another Member State and how to deal with homemade testing equipment.

### **QMS: procedures**

The following procedures are needed:

1. Development of documents

Input of this procedure are the requirements as defined in 4.1 General. The output are the documents. This is a continuous process fed by input from sources like results from audits workshops and inspected sprayers, developments in legislation, standardisation, spraying technique and testing equipment.

2. Training of test operators

Input of this procedure are the documents with the demands for the content and end-levels of the training. Result shall be certified test operators. Based on the evaluation of the trainings and changing demands from technique, standards and legislation the content and lay-out of the training can be changed/ The certified test operators shall be registered in a central database in a uniform way. This information is used both for the recognition of workshops and for the registration of results of the inspections. SPISE TWG 5 is dealing with this subject.

3. Recognition of a workshop

Workshops shall be recognized following the demands for the workshops, the testing equipment, the testing area and the availability of a certified test-operator a potential workshop can be recognized and become an authorized workshop. This workshops has to registered in a central database.

4. Inspection of sprayers

Sprayers shall be inspected by recognized workshops by certified test operators following the relevant testing protocol. The results of the inspection shall put on a test report. Only sprayers what meet all requirements shall be approved.

5. Calibration of testing equipment

Testing equipment shall be periodical calibrated or checked on correct and accurate operation. This calibration can be done by independent laboratories, the official organisation or other to be defined organisation. Important is to describe the asked accuracy of reference methods / instruments used to the calibration.

6. Registration of recognized workshops

The recognized workshops shall be registered in a central database, this list of workshops shall be visible for the owners of sprayers.

7. Inspection of a workshop procedure

Workshops shall be periodically inspected. Their condition and calibration shall be checked and measured. The exact procedure can be found in Annex 1.

## 8. Inspection audit procedure

Periodical audits of the process the test operator is following when testing a sprayer or the result of this inspection (the tested and approved (or disapproved) sprayer) are needed in order to keep the quality uniform. The output of this procedure will be used in the procedure of recognition of the workshops.

### **Conclusion**

The requirements for the sprayers in Annex 2 of the EU directive 2009/128/ec and the harmonized standards of the EN-ISO 16122 series are a good base for testing sprayers in the EU. But to have within a member state and between member states uniform inspections of a high level of quality, which is needed to reach enough support among the owners of sprayers and for an effective mutual recognition, a system of Quality Assurance is needed. This paper gives an outline and base of a future SPISE Advice on this topic. It is based on the harmonized EN-ISO standards and includes other SPISE advises on the different topics.